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Southwestern MEDICINE

Official Journal of The Southwestern Medical Association,
The Western Association of Railway Surgeons, Southwestern Dermatological Society,
Texas District One Medical Association, The Southwestern New Mexico Medical Society,
and El Paso County Medical Society

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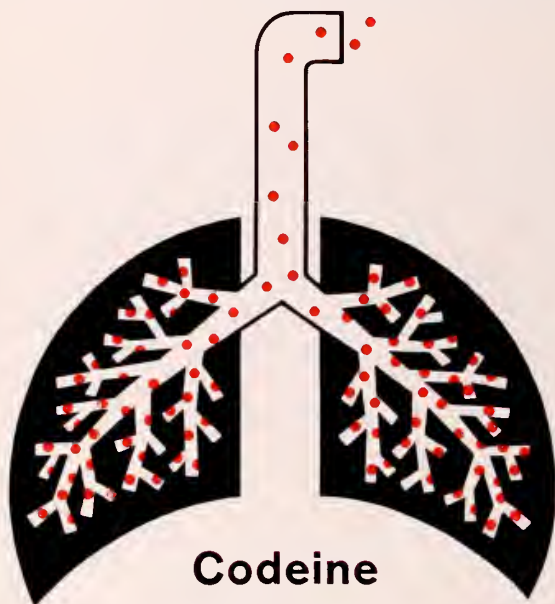
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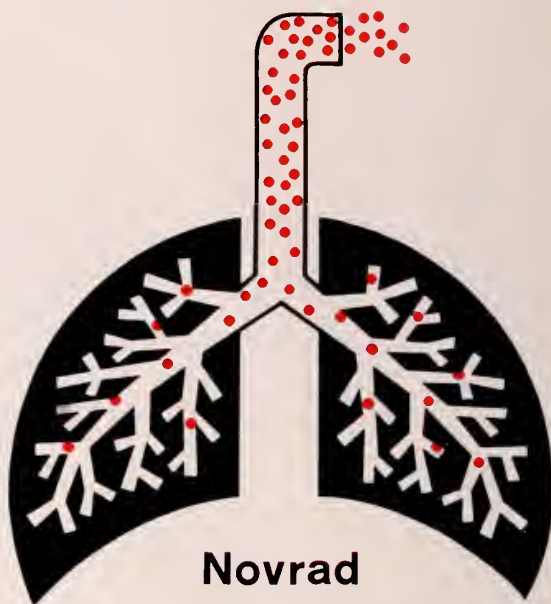


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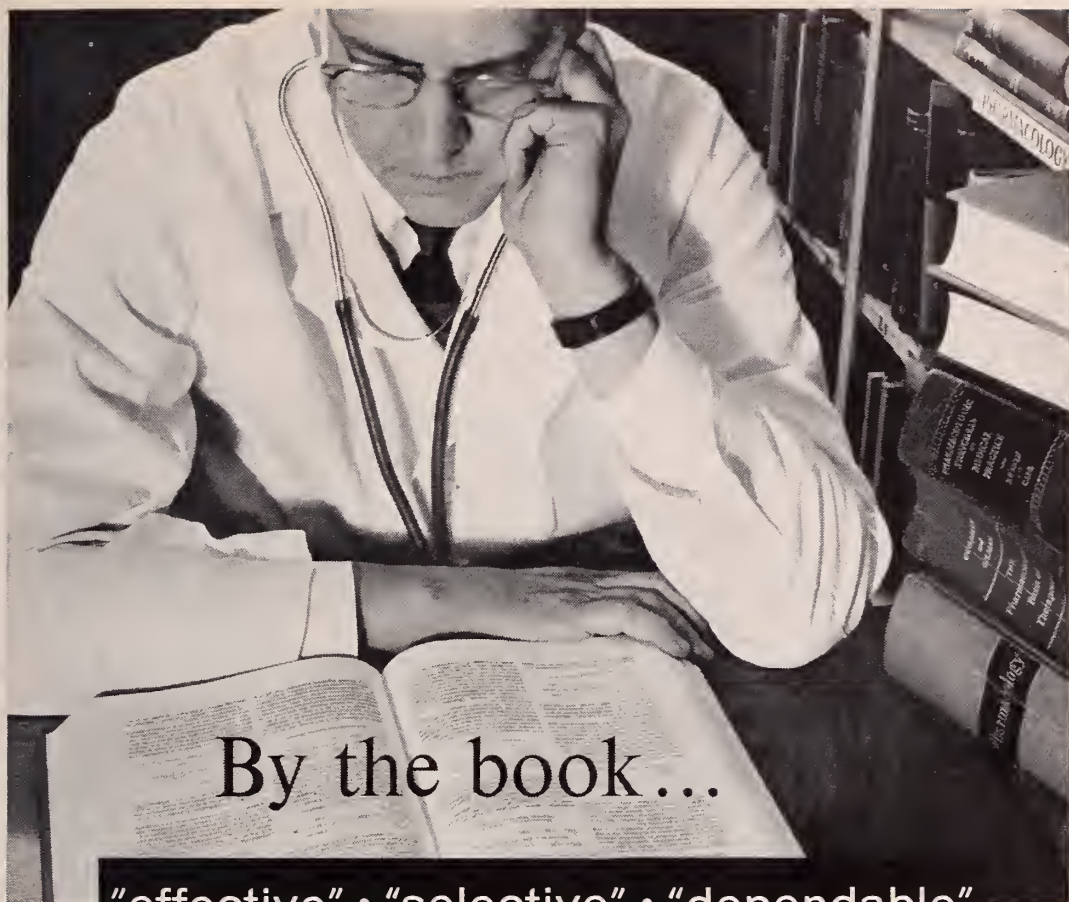
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Official Journal of

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El Paso County Medical Society

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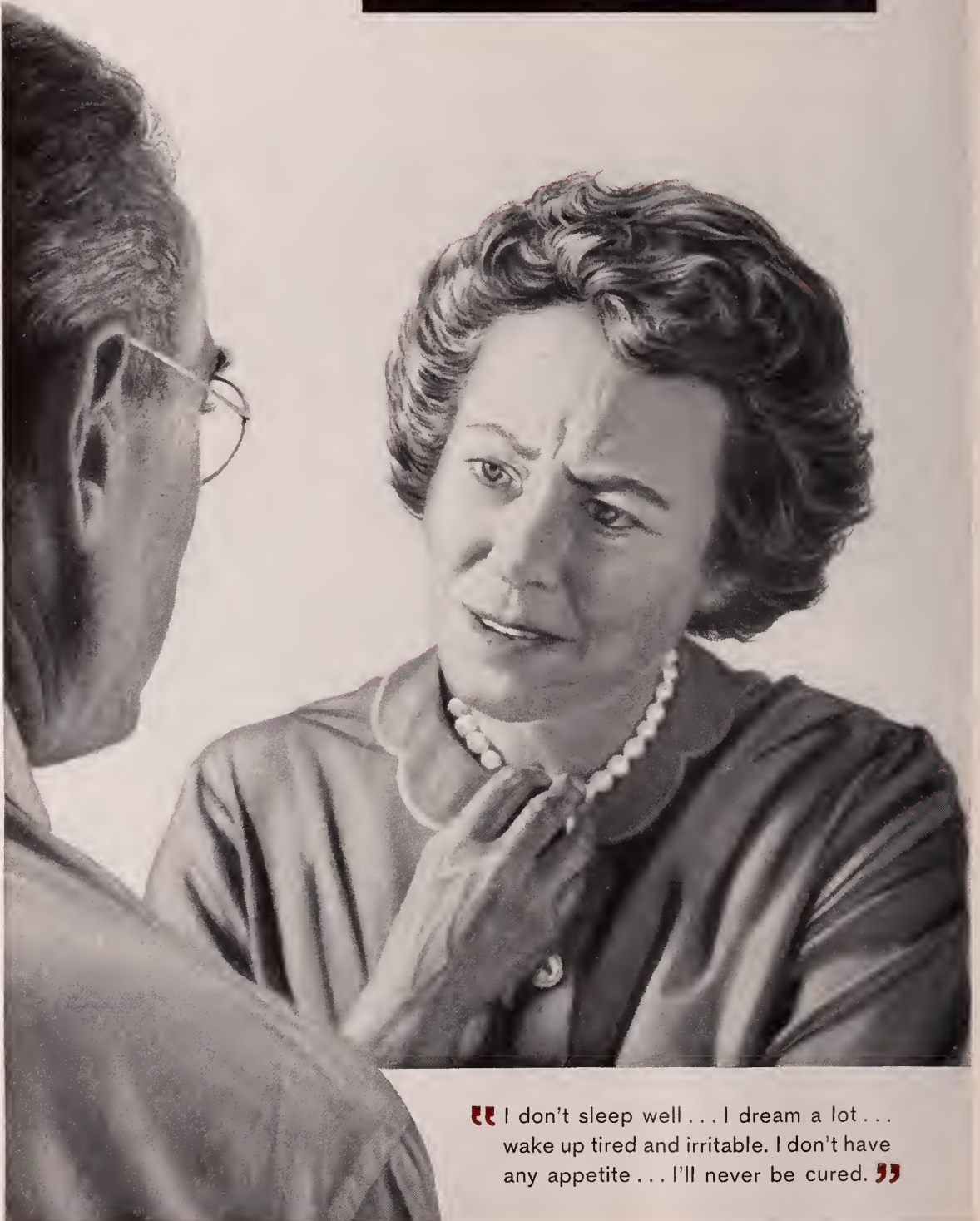
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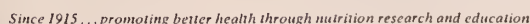
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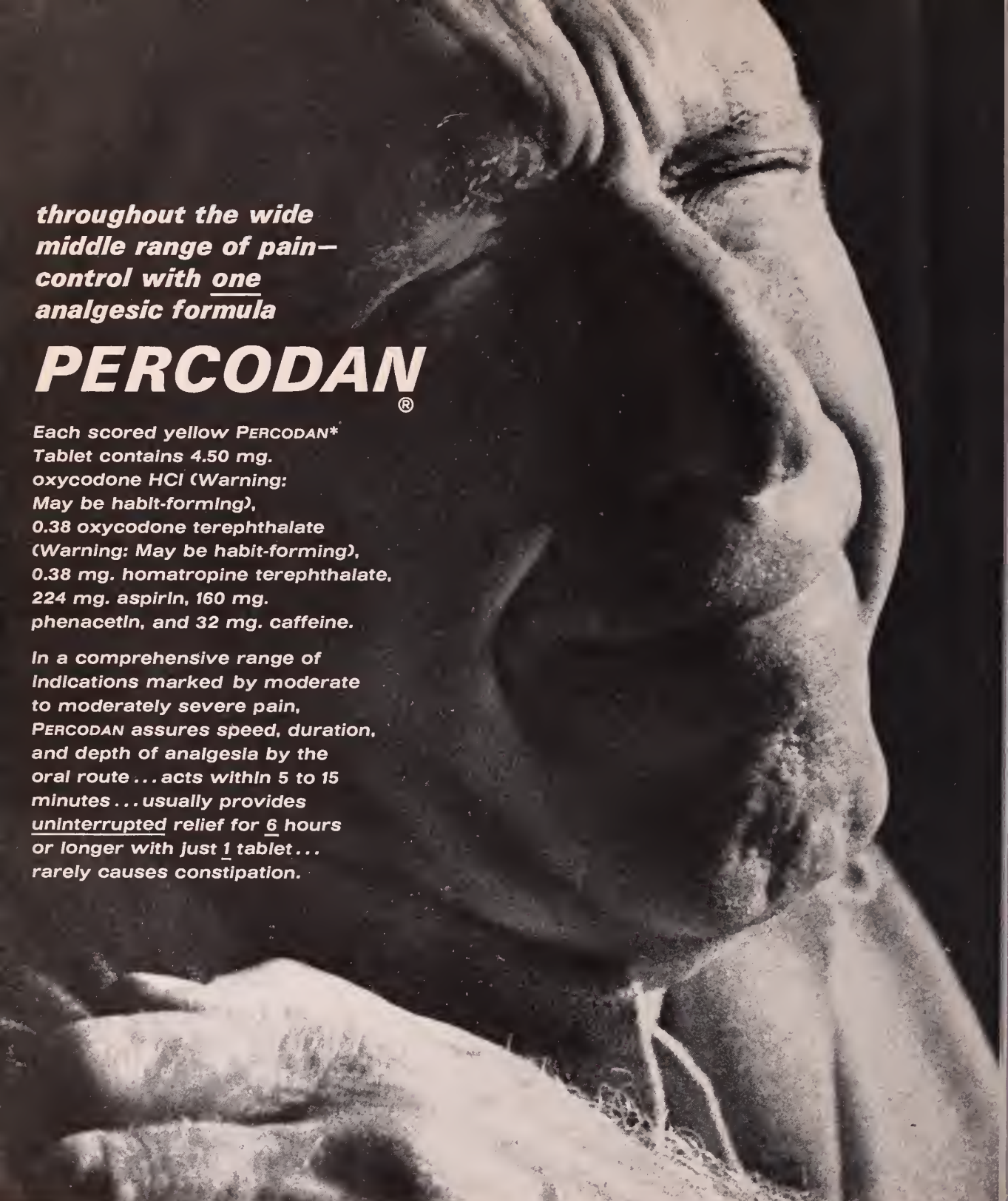
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SOUTHWESTERN OFFICERS—Dr. Frank A. Shallenberger, Jr., Tucson, center, was elected president of the Southwestern Medical Association at its 45th annual session. Others in the photo are, left to right, Dr. Zigmund W. Kosicki, El Paso, secretary-treasurer, who was general chairman for the El Paso meeting, Dr. Clement C. Boehler, El Paso, president-elect, Dr. M. D. Thomas, El Paso, immediate past president, and Dr. H. P. Borgeson, Alamogordo, N. M., new member of the executive committee. Not shown is Dr. W. G. Morrow, Jr., El Paso, new vice-president.

Dr. Shallenberger Elected President of Southwestern Medical Association

Dr. Frank A. Shallenberger, Jr., Tucson, was elected president of the Southwestern Medical Association at the organization's annual meeting in El Paso, November 14-16, 1963. The Southwestern meeting was held jointly with the Interim meeting of the New Mexico Medical Society and drew a total attendance of 243.

Other new officers of the Southwestern Medical Association are Dr. Clement C. Boehler, El Paso, president-elect; Dr. W. G. Morrow, Jr., El Paso, vice-president; and Dr. Zigmund W. Kosicki, El Paso, secretary-treasurer. Dr. M. D. Thomas, El Paso, was the retiring president. Members of the executive committee are Drs. Shallenberger, Boehler, Morrow, Kosicki and Thomas, and Dr. H. P.

Borgeson, Alamogordo, N. M., Dr. Louis W. Breck, El Paso, Dr. Homero Galindo, Juarez, Mexico, Dr. Louis G. Jekel, Phoenix, Dr. Frank A. Rowe, Albuquerque, and Dr. Frederico Sotelo, Hermosillo, Mexico.

Las Vegas, Nevada, site of the 1961 Southwestern meeting, was selected as location for the 1964 meeting.

Speakers at the meeting were Dr. Demetrio Sodi-Pallares, Mexico City, Dr. Ethan Allan Brown, Boston, Dr. Hermann M. Burian, Iowa City, Dr. J. T. Jabbour, Oklahoma City, Dr. S. Arthur Localio, New York, Dr. James L. Sheehy, Los Angeles, and Dr. Carl E. Wasmuth, Cleveland. Richard M. Layton, Portland, Oregon, field representative for AMPAC, spoke at a joint luncheon of doctors and wives sponsored by the N. M. Medical Society Auxiliary.

TMA District One To Meet February 1

District One of the Texas Medical Association will meet in El Paso, Saturday, February 1, 1964, for its annual session, which this year will be held in conjunction with a one-day postgraduate session the following day.

Dr. Robert Mayo Tenery, Waxahachie, president of the TMA, will speak at a dinner at 7 p.m. Saturday in the new El Paso Manor Motor Hotel. Visiting doctors and their wives will be guests of the El Paso County Medical Society for the social hour and dinner.

Mrs. Hamilton Ford, Galveston, president of the TMA Auxiliary, will address physicians' wives at a no-host luncheon in the El Paso Club in the new El Paso National Bank Building at noon Saturday.

Scientific Program

The District annual meeting will open at noon Saturday at the new Thomason General Hospital, with registration, luncheon and a business meeting. First subject on the scientific agenda is a "within hospital" closed circuit telecast, "Extraperitoneal Hernia Repair", at 2 p.m. Dr. Russell L. Deter of El Paso will perform the operation, which will then be carried on television to the hospital auditorium.

At 3 p.m. Dr. C. M. Stanfill of El Paso will speak on "Stapes Operation". At 3:40 p.m. Dr. Gilbert Landis, El Paso, will present a paper on "Ectopic Pregnancy". And at 4:20 p.m. Dr. L. W. Neill, El Paso, will talk on "Use and Abuse of Newer Anesthetic Agents".

Postgraduate Course

The post-graduate course on Sunday, Feb. 2, will be offered on Internal Medicine by the Graduate School of Biomedical Sciences of the University of Texas and will run from 9 a.m. to 5 p.m. in Thomason General Hospital. Details on the program are still to be announced. The course earns six hours of AAGP credit.

The District One registration fee of \$5 is for physicians only.

Dr. William R. Gaddis, El Paso, has been acting president of District One since the death last year of Dr. M. Nathan Kleban of El Paso, who was elected president at the Pecos meeting a year ago. Other officers are Dr. George Hoffinan, Fort Stockton, president-elect; Dr. Charles Oswalt, Fort Stockton, counselor; and Dr. Russell Holt, El Paso, vice-counselor.

Coming Meetings

Texas Medical Association District One, Annual Meeting, Thomason General Hospital, El Paso, Feb. 1, 1964.

American College of Allergists Graduate Instructional Course and 20th Annual Congress, The Americana, Bal Harbour, Miami Beach, Fla., Mar. 1-6, 1964.

University of Colorado School of Medicine, Fifth Postgraduate Course in Medical Technology, Denver, Mar. 16-21, 1964.

New Mexico Medical Society, 82nd Annual Meeting, Business Sessions Ramada Inn, Clinical Program La Caverna Hotel, Carlsbad, April 13-17, 1964.

New Mexico Chapter, American Academy of General Practice, Summer Clinic, Ruidoso, N. M., July 20-23, 1964.

Western Association of Railway Surgeons, Annual Meeting, Sun Valley, Idaho, Oct. 7-11, 1964.

Southwest Obstetrical and Gynecological Society, Annual Meeting, El Paso, Oct. 29-31, 1964.

Dr. Garrett Heads El Paso County Medical Society



Dr. Garrett

Dr. H. D. Garrett was elected president of the El Paso County Medical Society for 1963-64 at the society's annual meeting, December 10, 1963.

Other new officers are Dr. Robert F. Boverie, president-elect; Dr. J. Travis Bennett, vice-president; Dr. James L. McNeil, secretary; Dr. Laurance N. Nickey, secretary-elect; and Dr. Werner E. Spier, treasurer. Dr. William R. Gaddis is the immediate past president.

Born in Bertram, Texas, Dr. Garrett attended public schools in Marlin, Texas, and received his B.A. from the University of Texas and his M.D. from the University of Texas Medical Branch at Galveston. He interned at the old El Paso City-County Hospital and began the general practice of medicine in 1942 in El Paso.

He then did post-graduate work in Dermatology for one year at the University of Pennsylvania Post-Graduate School of Medicine and became associated with Dr. Leslie M. Smith of El Paso in the practice of Dermatology.

He is certified by the American Board of Dermatology, is a fellow of the American Academy of Dermatology and is a past president of both the Southwestern Dermatological Association and District one of the Texas Medical Association.

Dr. Garrett and his wife reside at 2631 Altura Avenue in El Paso and have a son, Bert 16, and a daughter, Cindy 14, both students at Austin High School in El Paso.

Dr. Mitchell New President Of Railway Surgeons

Dr. John C. Mitchell of Salina, Kansas, has been elected president of the Western Association of Railway Surgeons.

Other new officers of the association are Dr. Ivan Ingram, San Francisco, first vice-president, and Dr. Samuel E. Senior, St. Joseph, Missouri,

second vice-president. Dr. Harry O. Hund, San Rafael, Calif., and Dr. Graham Owens, Kansas City, were re-elected treasurer and secretary, respectively.

Next meeting of the Association will be held in Sun Valley, Idaho, October 7-11, 1964.

Developmental Neurological Examination of the Infant

J. T. JABBOUR, M.D.

*Department of Pediatrics (Neurology)
The University of Oklahoma Medical Center
Oklahoma City, Oklahoma*

The neuromuscular development of the infant and child is dependent on the inherent potential neurologic maturation. During the past decade renewed interest in neuromuscular development in normal and abnormal children has encouraged further investigation of many cerebral disorders.¹

The Need for Neurological Evaluation

Children with cerebral disorders require an accurate history of developmental milestones and a concise, practical and informative neurological examination. The child over two years of age has a central nervous system which can be evaluated by the usual adult neurological examination. Unlike the adult, infants from the newborn period through the first year of life exhibit a brain stem and spinal cord reflex system which matures in a cephalocaudal direction. This maturation is associated with increased myelination, neurochemical and electrophysiological changes.²

The usual adult neurological examination has not proven adequate. Thus, many spontaneous or provoked reflexes and responses during various ages of infancy have been utilized as a means of assessing neuromuscular development. These re-

flexes and responses described as early as the 19th century and integrated into various neurological schemes, have neither been understood nor appreciated by the physician as he observes the rapid and changing activity of the infant's first years of life.

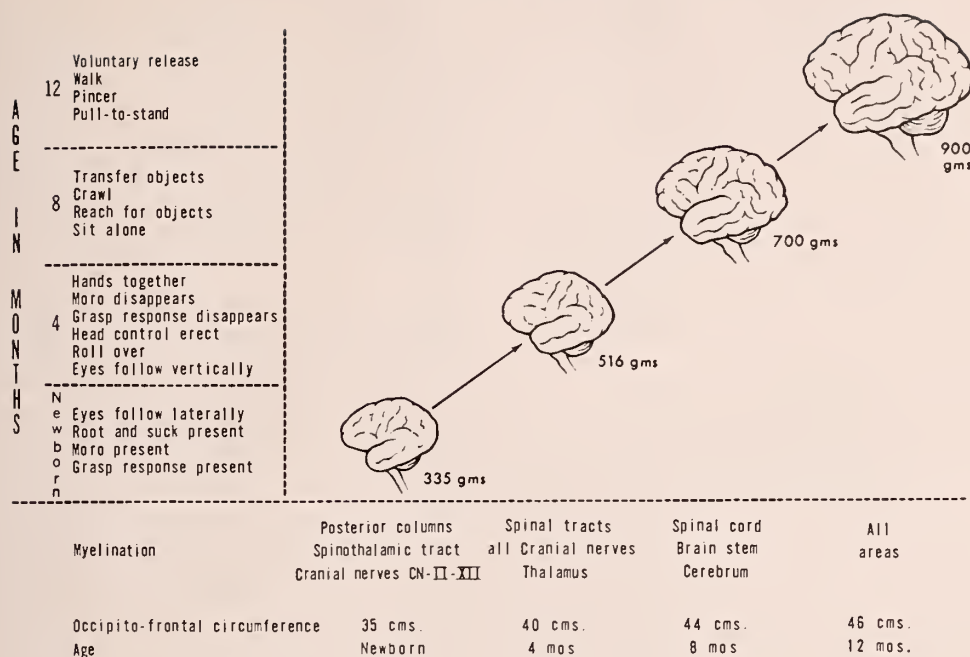
Too often the medical student and physician have been burdened by eponymic reflexes and responses with variable time of appearance and disappearance. All too often, modification of the original reflex by eliciting the response has not added to the clarity of why the infant at any particular age possessed this or that response. All in all, the physician has not fully understood the complex phenomenon of neurologic development and perhaps justifiably so.

Renewed Interest in the Neurologic Examination

During the past five years, the neurologic examination has incorporated the psychologic and developmental aspects of the infant in an effort to evaluate more completely concomitant cerebral maturation with neurologic response. These examinations have been of value in assessing the infant, although some perhaps appear too complete and time consuming for the average physician.

Many physicians are taught but seldom remember details of development of the infant under two years of age. The following neurologic examination has been utilized in our pediatric neurology training program^{3,4,5} (See Tables 1, 2). These responses have been of value because of their appearance and disappearance, the ease of eliciting

TABLE I
Neuromuscular Development in Infancy



the pattern of response and rapidity with which the examination can be performed. This examination is designed to verify the developmental milestones which, although variable in time of appearance, are readily observed by the parents and physician.

The Growing Brain Matures

The neuromuscular development of the infant and child is dependent on the growth of the brain and functional maturation of the cranial nerves, spinal cord tracts and other cerebral structures (Table 1). The growth and development of the infant's brain is extremely rapid during the first year of life. The child usually doubles and triples his birth weight by six months or a year. Likewise, the brain weight doubles by six months of age while by one year of age the brain weight has tripled.

Accompanying this growth of the brain, head circumference increases by one centimeter each month during the first year of life. The neuromuscular development accompanying this may be observed in the ability of the child to utilize the hands, neck, trunk and extremities (postural development). Other responses such as the grasp and Moro responses appear and disappear in

certain time sequences. Also, hand usage, ability to sit, crawl and walk are valuable adjuncts to the milestones during the first years of life.

It is imperative that the physician appreciate rapid changes in development which occur simultaneously with myelination of the spinal cord tracts and the cerebral structures. Instead of relying on measurements of the skull, it is necessary for the physician to correlate growth of the brain with the infant's neuromuscular development. This evaluation is an effort to relate to the examiner why the infant does what it does when it does. The head size and control, hand position and use, the pull-to-sit or traction response, muscle mass and tone and cranial nerves are evaluated. Although this is a useful screening neurologic examination, more complete evaluation may be necessary.

The Neurological Examination

Head Size and Position

The head size is the simplest but most often neglected part of the neurologic as well as pediatric examination. The head circumference is recorded more frequently in children under two years of age and rarely over four years of age.

Table II.
Neurological Responses From Birth to One Year¹⁻³

<u>Responses</u>	<u>Segment</u>	<u>Birth</u>	<u>4 Months</u>	<u>8 Months</u>	<u>12 Months</u>
Head	CN-III, C ₁ -C ₄				
Control		Prone-side to side	Erect	Both	
Size		35 cms.	40 cms.	44 cms.	46 cms.
Hand	C ₅ -T ₁				
Grasp reflex		Present	Disappearing	Absent	
Position		Fist	Open		Pincer'
Function			Midline to mouth	Transfer objects	Voluntary release
Traction	T ₁ -L ₄				
Head		Lags	In line	Assist	
Back		Round	Inclined	Straight	
Limbs		Flexed	Assist	Assist	
Muscle	C ₄ -L ₅				
Mass		Arm	Leg		
Evaluate tone		Ankle Flexors	Hip	Wrist	Knee
		Supinators	Shoulder	Elbow	
Cranial Nerves					
Vision					
Up	CN, II, III	—	+		
Lateral	CN, IV, VII	+	+		
Sound	CN, VIII	Startle	Localize	Imitate	
Suck-Root	CN, V, VII, IX, X	+	+		
Swallow	XI, XII	+	+	+	+
Cry	CN, IX, X	+	+		
Pin	Thalamus	Withdraw 1 leg	Withdraw 2 legs	Localize pin	Evade

A comparison of serial head sizes with chest circumference, body weight and length, sibling's head circumference and a history of head growth in parents and other family members may be both helpful and revealing in the child not only with the small but also with the large head (See Table II).

Hand Position and Use

The hand mirrors neurologic maturation and function as readily as the head control. More often, however, the parent or physician will observe poor head control and neglect the progress of hand function.

During the newborn period the hand is more often fisted and during the first two months of age assumes an open position. By four months of age the hands are frequently found together in or about the mouth. If the hands do not remain open and relaxed and in the midline most of the time by four months of age, central nervous system disease should be considered.

The grasp response of the newborn infant is easily elicited by placing the examiner's thumb from the ulnar side in the infant's hand. This response is marked by spontaneous grasping which is increased as the examiner tries to remove the thumb or finger from the hand. The grasp response is disappearing as cerebral maturation progresses by four months of age. In the child with neurologic or muscular disease, such as the

floppy or hypotonic infant, there is little or no grasp phenomenon.

The rapid progress of hand function between the fourth month and first year is seldom appreciated by the parent or physician. In his follow-up of the patient, developmental aspects of hand function may not be recorded. During this time the infant plays with the hands, places them in the mouth, and begins to reach and hold a rattle by six months of age. At eight months of age, the transfer of objects from one hand to the other is apparent. Accompanying the transfer of objects, the infant will oppose the thumb and fingers in a somewhat awkward prehensile response.

This becomes refined by a year of age as a very learned thumb and index finger pincer movement, enabling the child to pick up a small pill. Thus, during the first year of life, progress of hand function is rapid and well defined by time limits. Accompanying the pincer movement, the infant displays purposeful release by throwing an object such as a ball. During this phase of cerebral maturity and development of hand use, cerebellar and extrapyramidal abnormalities may also be detected by the presence of an intention tremor or tremor of rest.

Traction or Pull-to-Sit Response

The response to traction enables the physician to simultaneously evaluate muscle tone and con-

trol of the head, neck, back and limbs. It is performed on the supine infant by placing the examiner's thumb in the infant's hand and gently pulling to the sitting position. At birth, the infant is predominantly flexor with the limb, back and neck muscles resembling the fetal position. With the pull-to-sit response the head lags, there is no active participation of the infant, the limbs tend to be flexed and the back is rounded. As the child is assuming the sitting position, the head is slightly erect, then falls momentarily to rest on the chest.

By four months of age the arms are slightly extended, the legs tend to flex and extend. The head is raised in line with the trunk and there is shoulder and arm assistance. The four month old assumes the erect head and back positions because by six months, the infant will begin to sit supported. The eight month old child responds with spontaneous voluntary grasp of the examiner's thumb and assistance at the shoulders and arms.

Frequently, the legs are extended to assume a standing rather than a sitting position. This response permits a measure of postural development. Hypertonia or hypotonia may be perceived by the alteration of resistance of muscle and joint movements during the examination.

Muscle Mass and Tone

The simplest test for muscle evaluation is to observe the contour and texture by comparison of normal and abnormal muscles in children of comparable age. Muscle tone is evaluated by active and passive movement of the limbs, neck and trunk musculature. Often, the altered state of tone (hypotonia) is proximal or about the neuraxis is muscular disease, distal in peripheral nerve and anterior horn cell disease while in upper motor neuron diseases, hypotonia or spasticity (hypertonia) may be detected in the distal or proximal extremities.

For more thorough evaluation of tone, observation of the infant in the vertical position will reveal scissoring (adductor hypertonia) while the "pithed frog" appearance of lower motor neuron disease may be noted in the supine infant. On occasion, lifting the child vertically by the axillae reveals a laxity and weakness of the shoulder joints.

For evaluation of spasticity, passive movement of the ankle joint, supinators and pronators of the forearm, the hip and shoulder adductors, the knee and wrist flexors and extensors in this order of examination will reveal the resistance produced by pyramidal tract disease at various ages. In the infant, early recognition of spasticity may be enhanced by holding the child in mid-air while observing extension of the back and limbs or by rotating the head from side to side if a unilateral lesion is suspected. The muscle tone of the side toward which the head is turned will be exaggerated.

Sight, Sound and Cranial Nerves

In general, an evaluation of cranial nerve function may be performed with very little manipulation. At birth, the infant follows and looks laterally. By three months of age the infant may follow objects vertically, thus relating the function of cranial nerves III, IV, and VI. The child during the first three months may startle, cry or blink to sounds such as quickly dropped objects, or to a flash of light whereby facial asymmetry may be observed.

Other cranial nerves including the trigeminal, facial, glossopharyngeal, vagus, hypoglossal and accessory nerves are tested by the infant sucking the finger or nipple. With time, laughing aloud by four months, control of saliva, eating and swallowing and single words by one year permit an evaluation of the function of cranial nerves VII, IX, X, and XII.

Sensory Examination

The sensory examination of the infant is performed by pin prick or firm pressure on the soles of the feet and hands. From birth to four months, crying followed by withdrawal of one or both legs occurs. By eight months of age, the infant may localize painful stimuli while by one year he will localize and evade a painful stimulus.

The autonomic nervous system may be evaluated by observation of flushing, mottling, and sweating which if altered suggests cerebral and especially hypothalamic dysfunction.

Conclusion

In conclusion, a developmental neurologic examination utilizing the head, hand, traction re-

sponse, muscle and cranial nerve examination from birth to one year is described. Correlation of the examination to (1) the infant's developing central nervous system, (2) the age of the infant, and (3) the pattern of response, is described. The physician who appreciates and understands the temporal sequence and value of the developmental neurological examination will be rewarded by early diagnosis of neurological disorders.

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Is This Regulation Really Necessary?

Hospitals are sometimes stubborn upholders of tradition, tending to resist innovation. This attitude is usually good for the patient, but perhaps not always. It is quite possible that hospitals in general may be observing some traditions which have either outworn their usefulness, or need never have been established in the first place.

Patients' complaints, even the type so often used as material by gagwriters, may have grains of truth in them. "The flashlight in the patient's eyes at 2:00 a.m. to check his resting status, or the inhuman before-break-of-dawn greeting, 'Let's wake up and wash our faces, shall we?'"

One particular tradition which hospitals have maintained as a "Sacred Cow" is the prohibition against child visitors. Perhaps this one should be critically reexamined and possibly revised or discarded.

Since early in 1961, two Air Force Hospitals — the 400 bed hospital at Wright-Patterson Air Force Base, Ohio, and the 45-bed hospital at Whiteman Air Force Base, Missouri — have drastically broken with tradition by allowing child visitors. These hospitals welcome child visitors of *any* age from 10:00 a.m. to 8:00 p.m. The results have been excellent.

Hospitals have always given two main reasons for their opposition to such a policy: The danger of cross infection and the fact that children create noise and confusion, upsetting hospital routines and irritating patients.

The danger of cross infection, however, has been neutralized in recent years by newer developments in chemotherapy, immunization and sanitation. As to the second argument, that children are noisy and disruptive, these Air Force Hospitals have found that what really lies behind this view is the convenience of the Staff — not the protection of the patient.

Hospitals exist for the benefit of patients. The main point to consider about child visitors is whether such a policy would help patient morale. Ever since the child visitors' program began at the Air Force Hospitals, patient morale has markedly increased. Even patients without children enjoy the visitors.

Contrary to the belief that the sight of hospital patients can be traumatic for children, not a single child has become emotionally upset to the knowledge of the medical staff.

The Air Force reports that this child visitor program at the two hospitals is not entirely perfect. There have been a few minor incidents. But the parents were at fault in most of these instances — not the children.

Children cannot be allowed in all hospital areas. It is not appropriate for them to visit in Obstetrics, Pediatrics or in Psychiatric sections.

Also, the patient's physician must make the decision in each instance of child visiting. He may exclude children if he feels that they will interfere with the patient's health. Children are never allowed near patients with contagious diseases.

Perhaps some New Mexico hospitals might have the kindness to consider a modified version of such a policy. Surely the staff of a hospital can devise an operation, limited perhaps to one or two hours twice a week, which will not seriously interfere with essential hospital routines and yet will answer a deep human need.

Anything which can help patient morale and means a more pleasant hospital stay, is worth trying.

J.J.C.

—New Mexico Medical Society Newsletter

Prevention of Cast Pressure-Sores on the Heel

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Pressure-sores on the back of the heel, as a result of cast pressure, are relatively common and they should not be.

During the last two years I have seen 14, all on fracture patients who came in wearing casts. Most of them were mild, but four were large enough to require skin grafting and some took longer to heal than the fracture did.

It is possible to prevent fully 99 per cent of all heel sores which occur from cast pressure if the heel and heel cord area is properly protected with the proper kind of padding and *if the padding is placed in exactly the right location.*

The only exceptions to this are:

1. The severely debilitated patient, who can't be turned very often, may get pressure sores despite all the care you can exert.
2. A leg in which the circulation and soft tissue have been so badly damaged along with the fracture that the devitalized skin will not tolerate even the mildest degree of pressure.
3. Circulatory conditions of the leg like advanced arteriosclerosis or perhaps Buerger's disease.

My interest in the prevention of heel sores, being aroused by having seen so many in so short a time, stimulated me to conduct the following study:

I mailed 200 letters to general surgeons, general practitioners, and to five orthopedic surgeons. In each letter I enclosed a self-addressed, stamped postcard. On one side of the postcard was a line-drawing of a foot in a cast, Fig. 1,A. In my letters to the doctors, I requested them to sketch in with a pencil the area where they would place padding to protect the heel from cast pressure.

The five orthopedic surgeons indicated in their reply that they would pad the heel cord as well as the heel with the thicker pad under the heel cord, Fig. 1,B.

Of the remaining 195, 156, (80 per cent) indicated that they would place the padding as in Fig. 1,C. under the heel only. One doctor always used a skin-tight non-padded cast. Ten indicated that they would place padding on the heel cord area only, Fig. 1,D. One would use a felt doughnut pad only under the heel. Twenty-three would pad the back of the heel and the heel cord, but the thicker pad was to be placed under the heel. Four general surgeons who do lots of traumatic work, padded both heel cord and heel cord areas as in Fig. 1,B.

The proper way to pad the heel and heel cord area is as in Fig. 1,B. *The heel cord as well as the heel must be padded, but the heel cord area should have the thicker padding.*

Why Heel Pressure-Sores Occur

If an encasted leg is held relatively still and quiet all of the time, while the patient is in bed, then the weight of the leg produces a constant pressure on the back of the leg, the back of the heel cord area, and the back of the heel. Since

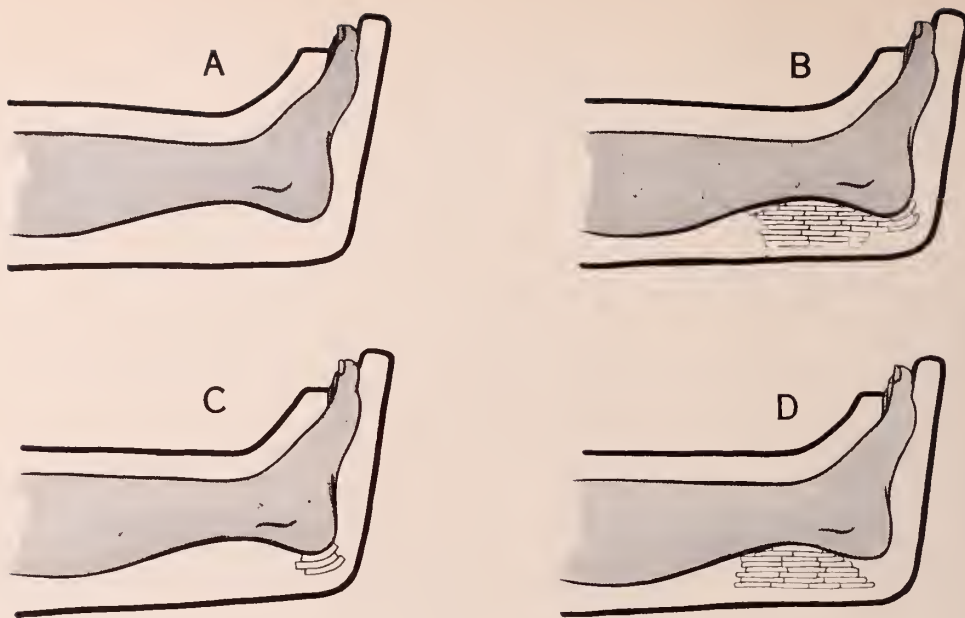


Figure 1

B—Proper way to pad a leg to prevent cast pressure sores on the back of the heel,

the calf muscles and the heel cord area are relatively large and soft, and since the back of the heel is small and hard, it is the back of the heel that will get most of this pressure.

The constant pressure on the back of the heel causes a small area of tissue ischemia, necrosis occurs, and a pressure sore develops.

Some materials used for padding are not satisfactory. Very often wool felt is too hard and is not resilient enough. With a little compression, like the weight of a leg on it, it becomes extremely hard and thus is not satisfactory. The cut edge of wool felt is hard enough to make a ridge against the skin. Sometimes a piece inadvertently will be folded over upon itself as the cast is applied and this forms a knot or ridge which makes localized pressure against the skin and this practically always causes a pressure sore.

Non-absorbable materials, no matter how soft they are, if placed directly against the skin may cause sores to develop, because moisture from the skin cannot be absorbed by that padding and maceration of the skin will result.

If an indentation or a ridge occurs in a cast as it sets, this will leave a rough, hard knot or

ridge inside of the cast, and this too is likely to make a pressure-sore develop.

However, the most important and most frequent reason for the development of heel pressure-sores is improper padding of the heel and the heel cord area.

To Prevent Heel Pressure Sores

1. Apply the cast correctly. Do not permit wrinkles, ridges, or indentations to occur in the cast as it sets. Hold the leg by the forefoot, (not by the toes), as the cast is being applied. Wrap the plaster around the leg, around the foot, and around the holding hand. If you hold it this way until the plaster sets, the inside of the cast will be smooth.

If your hand slips or for some reason you have to hold the leg with your other hand under the cast, then hold under the calf of the leg or under the heel cord area, but *not under the heel*. Hold it with your open hand and move your hand up and down frequently to prevent indentation ridges from occurring.

2. After the patient returns to his bed, have him turn the encasted leg frequently from side to side.

This alternates the areas of the skin over the foot and leg which are subject to pressure.

3. Use padding which will absorb moisture and which is not too dense. It must be resilient and soft. The firm, wool felt padding that is used in so many places in the United States is, often, entirely too hard. Quilted cotton padding is absorbent and even when compressed remains relatively soft and is much better padding than wool felt. Highly porous foam rubber or foam plastics are usually satisfactory. They are soft, resilient and the porosity of the substance usually allows enough moisture absorption to occur to lessen the danger of maceration of the skin.

4. Place the padding in the correct position, under the heel cord area as well as under the heel, but *the padding should be thicker under the heel cord.* Fig. 1,B.

The heel cord area will tolerate pressure for long periods of time, the back of the heel will not. Look at Table 1, which contains clear, distinct, anatomical reasons, anatomical facts, why the heel cord area will tolerate pressure and the heel will not.

If the encasted leg is fixed to the other leg or to a body cast in such a way that when the patient is lying on his back the leg is held constantly in a fixed position of internal rotation, then and only then should the padding not be placed directly behind the heel and heel cord. In this instance, it should be placed a little medial to the heel cord and the heel. It must be placed in the *most dependent portion* of the leg, the part of the leg that is going to catch the weight.

It is a very easy and simple matter to take several squares or rectangular pieces of soft quilted cotton padding or very soft felt or soft sponge plastic, arrange them in a slightly stair-step fashion and place them under the heel cord, and one single thickness under the back of the heel. Be sure and use several pieces under the back of the heel cord, *so that the heel cord will catch the pressure and not the heel.*

Best Method

However, by far the simplest and the most foolproof way of preventing heel pressure sores is to use the molded foam plastic cast heel pad as is pictured in Fig. 2. This is soft and is porous



Figure II

Molded foam plastic cast heel pad which will prevent cast pressure sores on the heel. The heel is protected by soft foam plastic but most of the weight of the leg falls on the heel cord area.

Table I
Pertinent Anatomical Considerations

The Heel Bone	The Heel Cord Area
1. The back of the heel bone is covered with a thin layer of fibrous areolar tissue and skin.	1. The heel cord area is covered with elastic areolar tissue, some fat and with skin.
2. The skin and fibrous tissue layer is not freely movable over the bone.	2. The skin and subcutaneous tissue is freely movable over the heel cord.
3. The soft tissue covering over the back of the heel bone is rather thin.	3. The total thickness of the soft tissue over the back of the heel cord area is much thicker than that over the heel bone.
4. The surface area over the back of the heel is relatively small.	4. The surface area over the back of the heel cord is relatively large.
5. The back of the heel bone area is hard and unyielding to pressure.	5. The back of the heel cord area is soft and yielding to pressure.
6. The back of the heel bone is a convex surface so that if the heel rests on a firm surface or pad, weight will be concentrated in one small spot.	6. The back of the heel cord area is a broader, longer, softer surface so that the pressure on the heel cord area will be distributed evenly over the entire area.
7. The back of the heel does not change its shape with alternate contractions and relaxation of the gastrocnemius muscle.	7. The heel cord area does alternately change its shape with alternate contractions and relaxations of the gastrocnemius.

enough to absorb moisture and thus prevent maceration of the skin. It is shaped precisely, exactly correct, so that a patient who wears it will catch weight mainly on the back of the heel cord area rather than over the back of the heel, yet the back of the heel too is protected.

It is smooth inside. There are no square edges, and no folds or wrinkles can form in it, as sometimes occur when cut pieces of felt, quilted cotton padding or sponge rubber padding is used.

Another advantage is that this one single pad does not slip out of place as easily as multiple

squares of padding do, when the cast is applied. The leg should of course be covered first with stockinette or cotton sheet wadding and then the pad applied. The cast will then adhere to the pad thus preventing its migrating or slipping out of place.

These heel pads are relatively inexpensive since they may be used over and over again.

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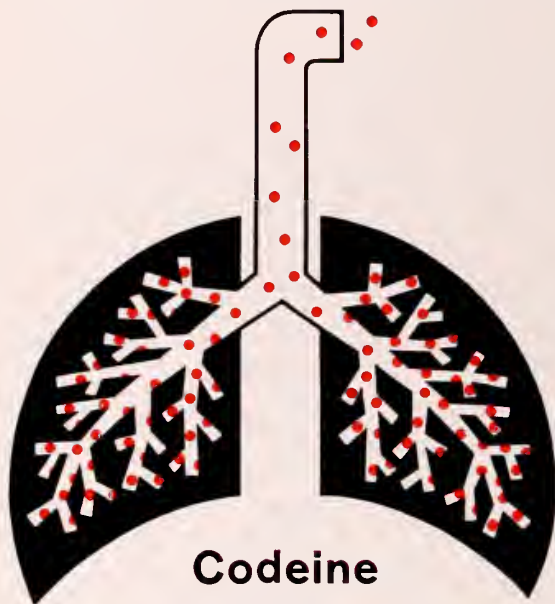
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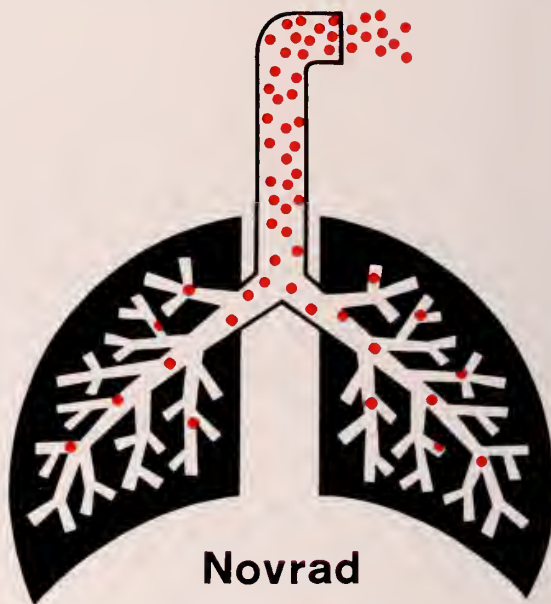


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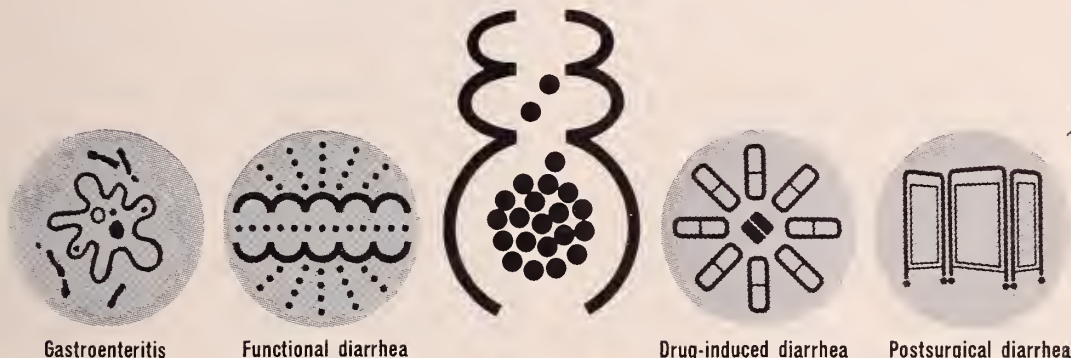
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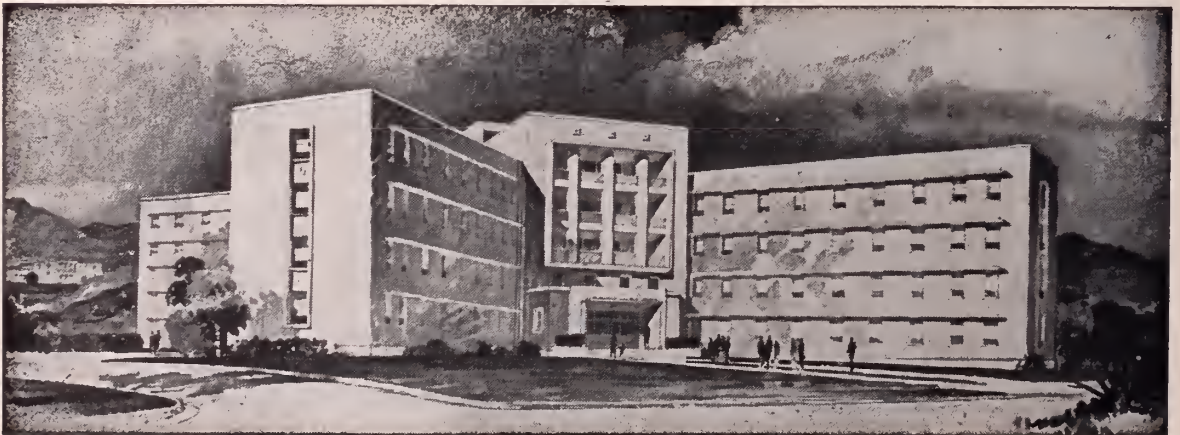
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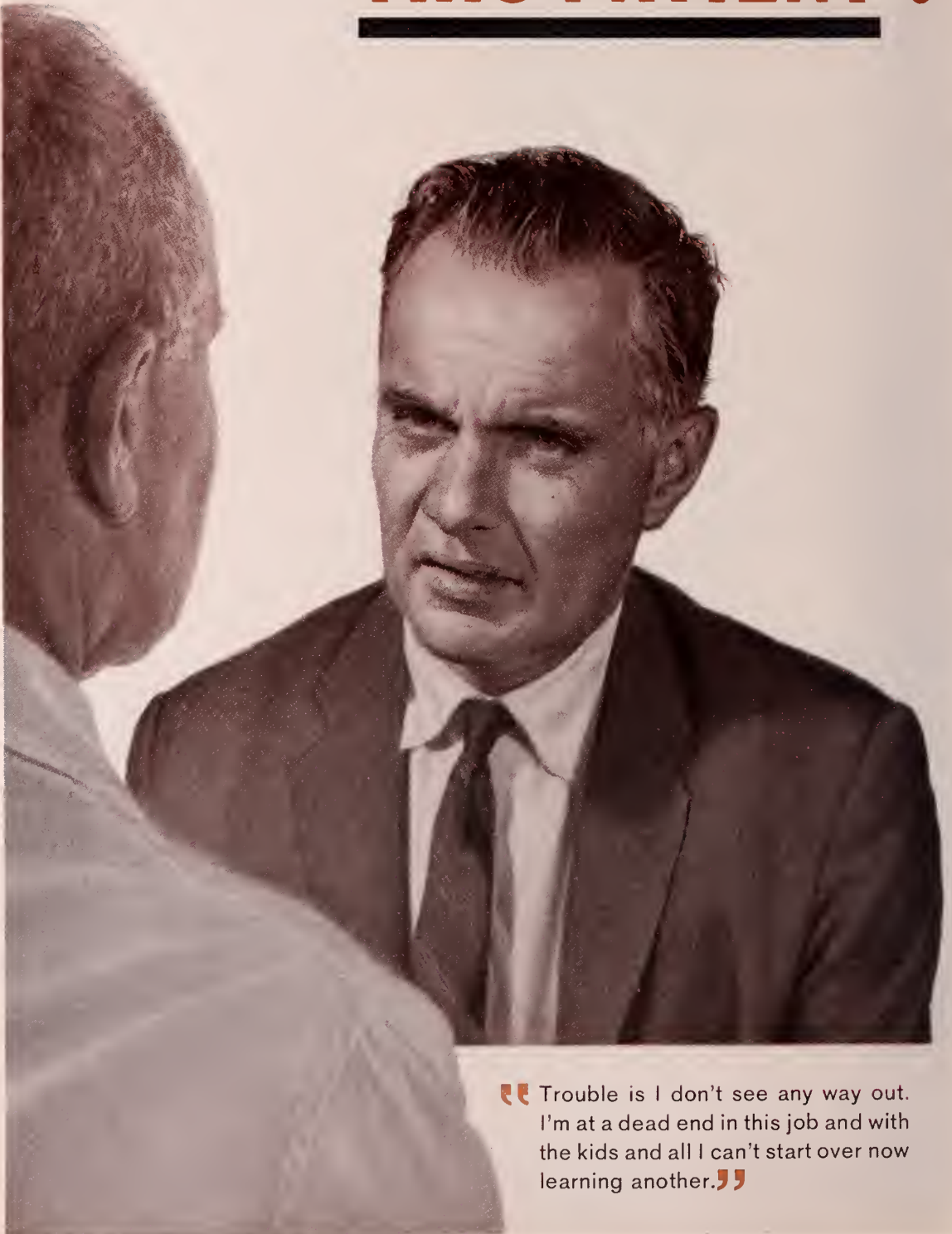
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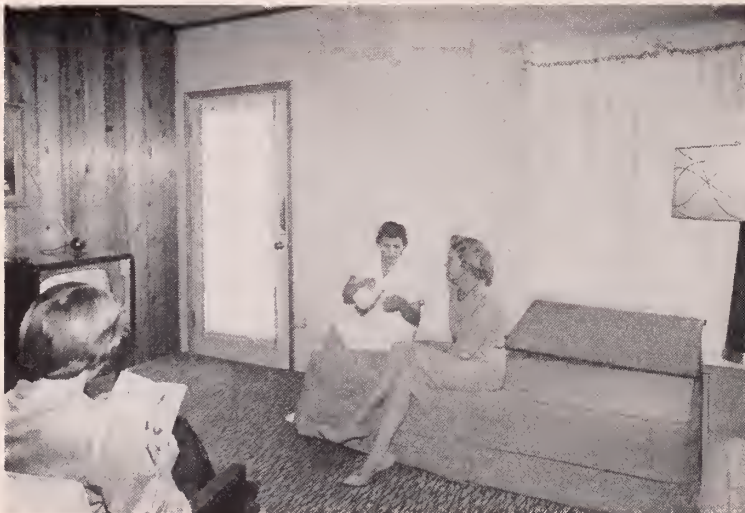


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New Mexico Medical Society, 82nd Annual Meeting, Business Sessions Ramada Inn, Clinical Program La Caverna Hotel, Carlsbad, April 13-17, 1964.

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Conference, University of Colorado Medical Center, Denver, May 25-29, 1964.

New Mexico Chapter, American Academy of General Practice, Summer Clinic, Ruidoso, N. M., July 20-23, 1964.

Western Association of Railway Surgeons, Annual Meeting, Sun Valley, Idaho, Oct. 7-11, 1964.

Southwestern Medical Association, 46th Annual Meeting, Flamingo Hotel, Las Vegas, Nev., Oct. 22-24, 1964.

Southwest Obstetrical and Gynecological Society, Annual Meeting, El Paso, Oct. 29-31, 1964.



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Robitussin with antihistamine and codeine

Each 5 cc. (1 tsp.) contains:

Glyceryl guaiacolate	100 mg.
Pheniramine maleate	7.5 mg.
Codeine phosphate	10.0 mg.

(Warning: may be habit forming)
Alcohol 3.5 per cent

Robitussin is indicated in coughs associated with head and chest colds, bronchitis, laryngitis, tracheitis, pharyngitis, pertussis, "flu," "grippe," measles, chronic paranasal sinusitis, pulmonary tuberculosis, or smoking. Robitussin A-C is especially indicated for allergic, harsh or unresponsive coughs.

dosage: ADULTS—1 tsp. every 3 to 4 hours. CHILDREN—½ tsp. every 3 to 4 hours.

side effects: No serious side effects from glyceryl guaiacolate have ever been reported. Nausea, G-I upset, and drowsiness may be encountered rarely with Robitussin A-C.

precautions: There are no contraindications for Robitussin. Robitussin A-C is contraindicated in patients hypersensitive to antihistamines or codeine.

DIMETANE® EXPECTORANT

antihistaminic / antitussive

Each 5 cc. (1 tsp.) contains:

Dimetane® (brompheniramine maleate)	2 mg.
Phenylephrine hydrochloride	5 mg.
Phenylpropanolamine hydrochloride	5 mg.
Glyceryl guaiacolate	100 mg.

Alcohol 3.5 per cent in a palatable, aromatic base.

DIMETANE® EXPECTORANT-DC

(exempt narcotic)

antihistaminic / antitussive / suppressant

Codeine phosphate	10 mg.
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(Warning: may be habit forming)

Dimetane® (brompheniramine maleate)	2 mg.
Phenylephrine hydrochloride	5 mg.
Phenylpropanolamine hydrochloride	5 mg.
Glyceryl guaiacolate	100 mg.

Alcohol 3.5 per cent in a palatable, aromatic base.

Indicated for relief of cough and allergic states in which an expectorant action is useful. Dimetane Expectorant-DC is indicated when the cough suppressant action of codeine is desired.

dosage: ADULTS—1 to 2 tsp. q.i.d., as necessary. CHILDREN—½ to 1 tsp., t.i.d. or q.i.d.

side effects: Overdosage may result in mild drowsiness or excitement, but within the therapeutic range neither is likely.

Precautions: Administer with caution to patients with cardiac or peripheral vascular diseases and hypertension.

contraindications: Hypersensitivity to antihistamines or codeine. Not recommended for use during pregnancy.

references:* Boyd, E. M., and Ronan, A. K.: Am. J. Physiol., 135:383, 1942.



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Hearing Impairment

Mechanism, Prevention and Treatment

JAMES L. SHEEHY, M.D., *Los Angeles*

Hearing impairment is said to be the commonest chronic disability in the United States. Frequently, however, the physician does not test the hearing when performing a general physical examination, nor does he consider the fact that even a mild degree of impairment may be the cause of an emotional tension, stress or anxiety problem.

The Dilemma of Hearing Impairment

The patient with a hearing impairment often finds himself in a dilemma. Because he must constantly be on the alert, sitting on the edge of his chair, so to speak, he finds he becomes excessively fatigued. With fatigue he and his hearing become even less efficient. Concern over being able to keep his job adds to this stress. He may rightly fear that if he does use a hearing aid he will be labeled "deaf" by his employer. (This is about as sensible as calling a person who wears glasses "blind.")

Even with a satisfactory aid he may find that he misunderstands words and is thereby accused of inattention. Unfortunately, the difficulties of the hard of hearing are poorly understood—or

tolerated—by those with normal hearing and the hard-of-hearing person knows this. Finally he is concerned that he will in fact become totally deaf and dependent entirely upon others for his livelihood.

This is being presented to help the general physician understand the mechanism, prevention, diagnosis and treatment of hearing impairments. Only by a clear understanding can he adequately counsel the heard-of-hearing patient.

The Hearing Mechanism

Sound waves enter the ear canal and strike the tympanic membrane. Vibrations of this membrane are transmitted to the inner ear fluid through the chain of ossicles: the malleus (hammer), the incus (anvil) and the stapes (stirrup), (Fig. 1). The tympanic membrane and ossicles act as a transformer, converting airborne vibrations into fluid waves in the inner ear. These fluid waves stimulate the delicate hair cells of the hearing nerve.

Impulses are transmitted by the nerve to the brain stem and then to the cortex of the temporal lobe for interpretation. Any block or defect in this system results in impaired hearing. If the

Presented at the Annual Meeting of the Southwestern Medical Association, El Paso, November 15, 1963.

From the Otologic Medical Group and from the Department of Otolaryngology, University of Southern California School of Medicine.

Sponsored by the Los Angeles Foundation of Otology.

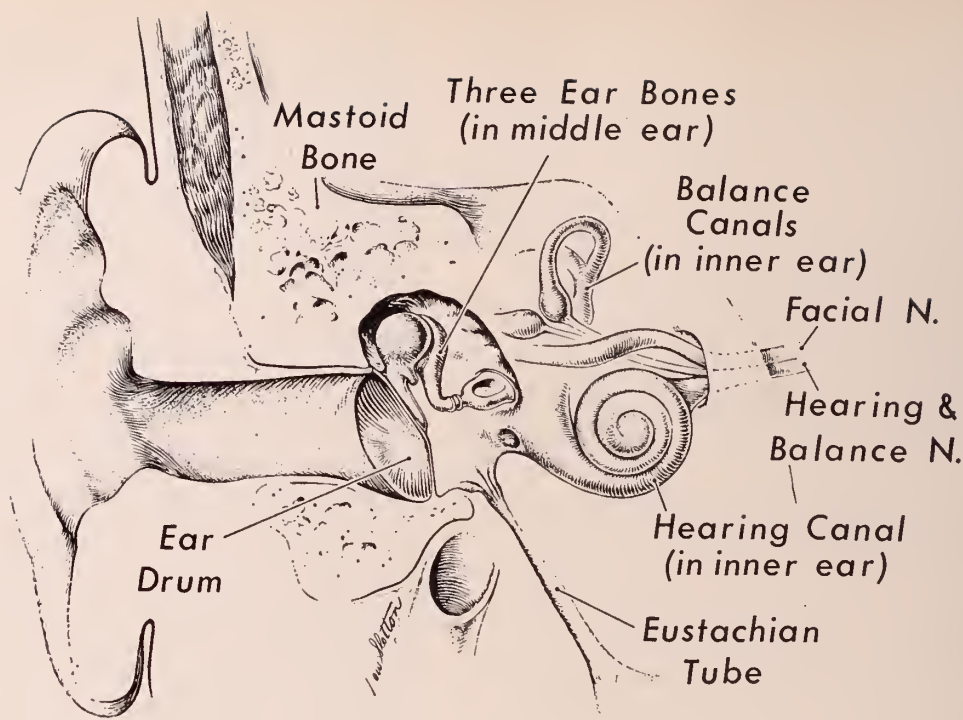


Figure 1
The hearing mechanism

block is in the ear canal or transformer mechanism (tympanic membrane and ossicles) a *conductive* hearing impairment results. If the defect is in the inner ear, nerve or brain, a *sensori-neural* or nerve impairment results.

Testing the Hearing

A number of small relatively inexpensive battery operated audiometers are on the market, (Fig. 2). With these it is not difficult to ascertain whether or not the hearing is normal (up to a 15 decibel level) or abnormal. This type of screening test could well be used by all physicians charged with the total care of the patient. If significant abnormalities are noted the patient may be referred to an otologist to further clarify the problem if desired.

Sensori-Neural (Nerve) Hearing Impairment

Any pathology which interferes with the function of the cochlea or the pathways of the auditory portion of the eighth nerve results in a sensori-neural hearing loss. These include circulatory disturbances of the inner ear, infection, toxemias, certain antibiotics, central nervous system disease, hemorrhage, acoustic trauma (exposure to high noise levels) and skull fractures which involve

the temporal bone. Congenital and hereditary inner ear hearing losses are not uncommon. Arteriosclerotic changes in later life cause a common type of sensori-neural impairment seen in older persons called presbycusis.

The individual with a sensori-neural impairment frequently complains that he has difficulty *understanding* what is said. Noisy environments markedly interfere with his ability to hear. Examination may fail to reveal any evidence of ear pathology. A 512 c/s tuning fork no longer heard when held one inch from the external ear will, likewise, not be heard when held in contact with the mastoid bone (Rinne Test), (Fig. 3).

Prevention

Noise trauma hearing loss may develop in any situation where the noise level is sufficient:

1. To make it difficult to talk in a very loud voice.
2. To produce a temporary change in the hearing acuity.
3. To cause ringing in one's ears.

Prevention is the only treatment and consists of:

1. Reducing the noise.



Figure 2

The Otometer; a small battery operated screening audiometer made by A. M. Brooks and Company, 1222 West Washington Blvd., Los Angeles, Calif.

serious infections where sensitivity tests indicate this is the only effective drug.

Treatment

Speech reading (lip reading) training should be obtained by all. This will aid greatly in the understanding of speech. If the hearing loss has progressed to the point that sound is not heard loud enough, a properly selected hearing aid should help greatly. Fortunately it is unusual for the hearing impairment to progress to total deafness.

Conductive (Middle Ear) Hearing Impairment

Any pathology that interferes with the transmission of sound vibrations to the inner ear results in a conductive hearing impairment. This pathology may be present in the external ear canal, middle ear or the eustachian tube. The external ear canal may be blocked by wax or by foreign bodies. The function of the ear drum may be interfered with by a perforation, edema or by fibrosis and scarring. Sound transmissions through the middle ear may be impaired due to ossicular chain pathology such as dislocation, necrosis, or fixation, or due to the presence of fluid in the middle ear. Eustachian tube obstruction results in pressure changes within the middle ear and, likewise, interferes with sound transmission.

The individual with a conductive hearing impairment complains that sound is not loud enough.

2. Protecting the individual with ear plugs.
3. Periodically testing the hearing acuity.

Ototoxic hearing loss may be produced by the systemic use of dihydrostreptomycin, Kanamycin, Neomycin, Vancomycin. Prevention is accomplished by:

1. Never using dihydrostreptomycin.
2. Using any one of the other drugs *only* in

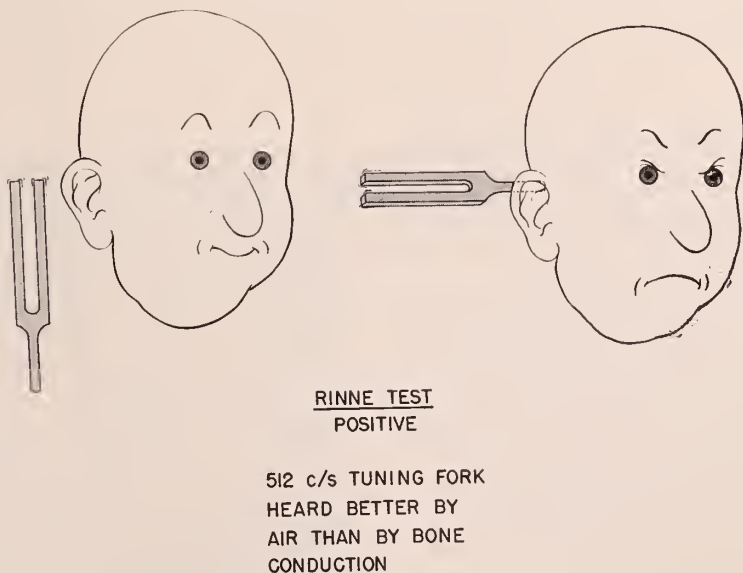
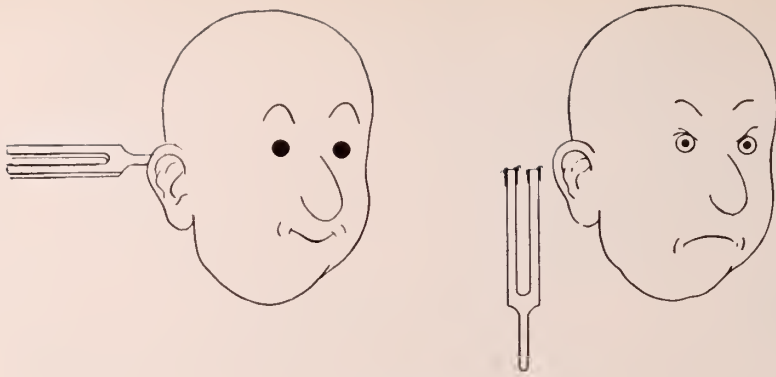


Figure 3

Rinne test findings in sensori-neural impairment, (this same response is obtained from normal hearing individuals).



RINNE TEST
NEGATIVE

**512 c/s TUNING FORK
HEARD BETTER BY
BONE THAN BY AIR
CONDUCTION.**

Figure 4

Rinne test findings in conductive impairments.

He has little difficulty in understanding speech in most cases. He will often state that he hears better in a noisy environment than in quiet surroundings. The objective findings in conductive hearing impairment may reveal no abnormality (as in otosclerosis) or external ear, ear drum or eustachian tube pathology. A 512 c/s tuning fork no longer heard when held one inch from the external ear *will* be heard when placed in contact with the mastoid bone (Rinne Test), (Fig. 4).

Treatment

Since the development of the operating microscope there are few, if any, conductive hearing impairments that are not amenable to surgical

treatment. Satisfactory results can be expected in 90 per cent of those operated upon. Treatment, of course, depends upon recognition and correction of the underlying pathology.

Serous Otitis Media

This is a frequent cause of chronic hearing loss in children and is occasionally seen in adults. Often the tympanic membrane has a good light reflex and appears darker than normal with a chalk white appearance of the malleus handle. Use of the pneumatic otoscope will invariably reveal a *fixed tympanic membrane*. A fluid filled middle ear will reduce or prevent tympanic membrane movement. The underlying problem here is eustachian tube blockage. In children adenoidectomy is

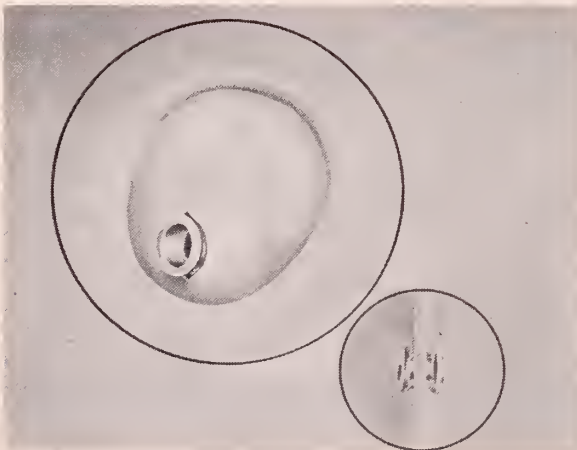


Figure 5

Collar button polyethylene tube inserted through myringotomy incision in chronic serous otitis media.

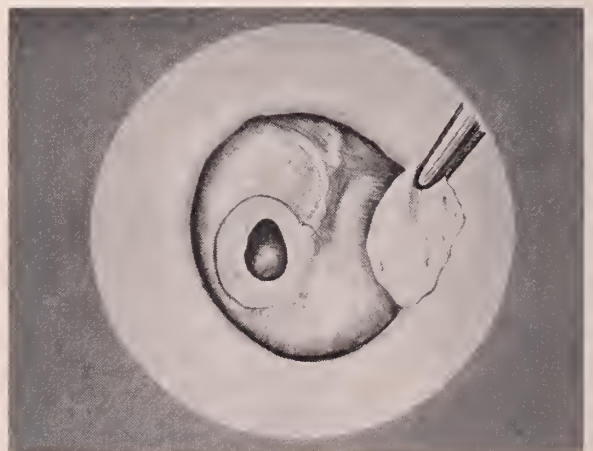


Figure 6

Myringoplasty: Applying a graft to the ear drum.

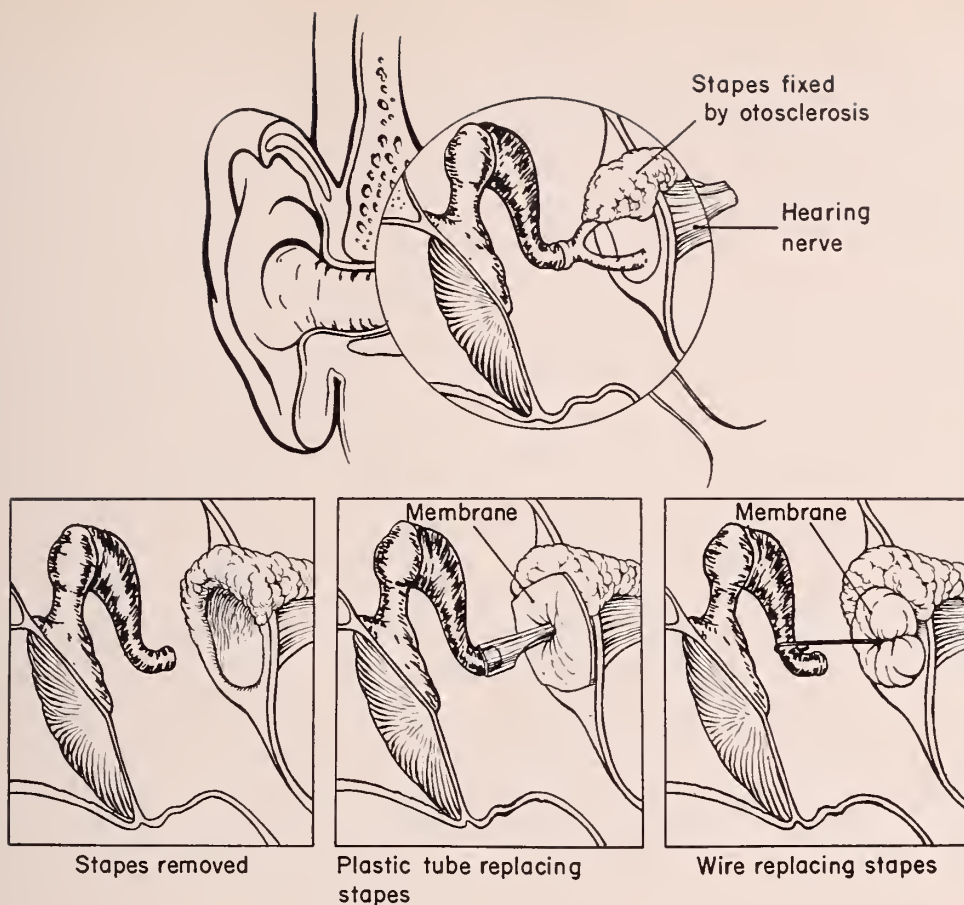


Figure 7
Diagram of the appearance and treatment of otosclerosis.

frequently indicated with drainage of the middle ear fluid by myringotomy at the time of surgery. In chronic cases, a polyethylene tube is inserted through the myringotomy incision after removal of fluid, (Fig. 5).

Perforation of the Tympanic Membrane

It is of utmost importance that the patient be cautioned not to get water in his ear. If infection is present, this should be controlled by appropriate local and systemic antibiotic treatment. After the ear is dry, the perforation may be closed by tissue grafting (myringoplasty), (Fig. 6). This will seal the ear, preventing future drainage, and restore the hearing in most cases.

Chronic Otitis Media

In long-standing chronically infected ears, cholesteatoma (a skin lined cyst in the mastoid) is often found. This has usually destroyed some or all of the middle ear bones. Surgery (tympanoplasty) is performed to rid the ear of infection

and to obtain hearing improvement by reconstructing the ear drum and the ossicular chain.

Otosclerosis

Otosclerosis is the commonest single cause of progressive conductive hearing impairment in adults. It is due to a developmental proliferation of bone involving the footplate of the stapes and oval window, (Fig. 7). Otosclerosis is not associated with any objective signs of ear disease. Treatment is by the stapedectomy operation. (Fig. 7). Under local anesthetic the hardened stapes is removed and replaced by a prosthesis (usually wire).

Conclusion

Tremendous progress has been made in the medical, surgical and rehabilitation treatment of patients with hearing impairments. It is imperative that physicians in all fields recognize the presence of hearing impairments and encourage patients to avail themselves of modern otologic care.

Nausea and Vomiting in Pregnancy*

WENDELL R. SYLVESTER, M.D.

Sherman, Texas

Comparative Evaluation of Therapy With Hydroxyzine and Prochlorperazine in Routine Office Practice

Nausea and vomiting, the dreaded "morning sickness" of the expectant mother, normally occurs in 50 per cent of pregnancies. These manifestations are due to an estrogen imbalance or to lowered motility and are usually self limited by the fourth month. Mostly present in the morning, hence the name, nausea and vomiting may persist throughout the day.

Even if, in the majority of cases, nausea and vomiting can be regarded as an almost inevitable, though innocuous, phenomenon, it constitutes a drain on the forces of the expectant mother who should be maintained in good physical and psychological condition throughout these nine months which *per se* must be considered a severe strain. Additional stress, inflicted by nausea and vomiting of pregnancy, should, therefore, be arrested and suitable medication be available for the physician to avoid unnecessary deterioration of the patient.

For the purpose, administration of an adequate ataraxic and antiemetic agent is indicated whose tranquilizing properties coupled with an arresting action of nausea and vomiting will have a calmative effect on the patient apart from controlling her "morning sickness", regardless of the underlying causes that may have produced the condition.

Recently, a new drug which fulfills these requirements has been added to the therapeutic arsenal. The compound, hydroxyzine,* which can

be given either orally as hydroxyzine pamoate or parenterally as hydroxyzine hydrochloride, is reputed to be a tranquilizer as well as an antiemetic.^{1-1D} Pharmacologically, the agent has been classified as psychotherapeutic antihistamine with depressant action on the central nervous system as well as possessing antiemetic properties, making the compound particularly indicated for use in patients with nausea and vomiting of pregnancy.

Object of Study

The present study has been conceived with the object of establishing the effectiveness of hydroxyzine in routine office practice in women afflicted with nausea and vomiting as well as the clinical evaluation of the agent compared with another drug, prochlorperazine,* hitherto widely used in cases of "morning sickness".

Subject to the study were 95 women who received hydroxyzine, and 15 more to whom prochlorperazine was given. In both these groups, the patients were in varying stages of pregnancy, and all of them complained of nausea and vomiting. Their age ranged from 14 to 39 years. No particular distinction was made if the patient was primipara or multipara. All the patients were attended by the physician in his office.

Prior to therapy, as routine procedure, hematogram and urinalysis were determined in each of these women to ascertain if laboratory findings were normal or suggested other underlying conditions. In most of the cases pregnancy followed

*From the Department of Gynecology and Obstetrics, Robert B. Green Hospital, San Antonio, Texas

*Available as Vistaril.® Pfizer Laboratories, New York.

its normal course. However, in both groups there were some exceptions with complications of more or less severe degree.

Routine dosage in the first group was 50 mg. hydroxyzine pamoate, administered orally twice per day, with the exception of 13 patients in whom 25 mg., given twice per day, were sufficient. The parenteral solution, hydroxyzine hydrochloride, was injected intramuscularly to 17 patients in doses varying from 125 mg. to 200 mg., to 14 of them in addition to oral therapy with the agent as one single injection.

Among them was a schizophrenic woman in early pregnancy who received two injections of 200 mg. each in addition to the oral medication. Three of the patients received injections of hydroxyzine hydrochloride as the only therapy without addition of the oral preparation. Duration of therapy varied and lasted from a minimum of three days to a maximum of three weeks.

Duration of Treatment

In the group treated with prochlorperazine, dosage ranged from five to 10 mg. administered orally, four times per day. Only in two cases, the compound was injected intramuscularly, one single dose of 10 mg., in addition to 10 mg. orally the patient received four times per day. Duration of treatment with prochlorperazine varied from periods of seven days to two weeks with only one exception of two days.

Crossovers from prochlorperazine to hydroxyzine were made in three patients, and in another three from hydroxyzine to prochlorperazine. In both these crossovers there was one patient in each group who had been on the other drug prior to initiation of the present study. However, incorporation of these cases into the corresponding groups appeared appropriate and did not distort the overall picture.

No attempts were made to use placebo or any double blind technique in the course of this study.

Results

For unbiased evaluation of both the hydroxyzine and the prochlorperazine group, identical criteria were employed in establishing results obtained with either the one or the other of the two

drugs. These were classified as excellent when relief from nausea and vomiting of pregnancy was complete and occurred within 24 hours. Results were good when relief was complete on the second day of therapy with one or the other agent, fair when delayed until the third day, and poor when response to the drug was not satisfactory or not noticeable at all.

Comparative results are shown in table 1. In the group on hydroxyzine, results could be considered excellent in 68.4 per cent, good in 16.8 per cent, fair in 6.3 per cent, and poor in 8.4 per cent of the patients. Included in this group were some women with additional complaints. Conditions other than nausea and vomiting were cystitis, pyelonephritis, preeclampsia, vaginal bleeding, rheumatic heart disease, schizophrenic patterns, possible demise of fetus, etc., which were more or less severe and were treated with drugs indicated in the specific case. However, in most of the cases, these conditions had no influence on the results obtained with hydroxyzine.

In the group treated with prochlorperazine, results were found to be excellent in 53.3 per cent of the patients, good in 13.3 per cent, fair in 26.6 per cent, and poor in 6.6 per cent.

Special attention also merits the calmative effect, so important in the expectant mother. In course of this study, we found that in patients who received hydroxyzine this effect was particularly pronounced (11.6 per cent), much more than in those to whom prochlorperazine was given (6.6 per cent).

Table 1
Results

Qualification	Hydroxyzine		Prochlorperazine	
	No. of Pts.	Per Cent	No. of Pts.	Per Cent
Excellent	65	68.4%	8	53.3%
Good	16	16.7%	2	13.3%
Fair	6	6.3%	4	26.6%
Poor	8	8.4%	1	6.6%
Total	95	99.8%	15	99.8%

Among the patients who, in course of the present study, were crossed over from one to the other drug was a 36 year-old woman who on previous occasions had not responded either to prochlorperazine, or to hydroxyzine, or to meclizine hydrochloride plus pyridoxine hydrochloride (Bonodoxin®), or dicyclomine hydrochloride plus doxy-

*Available as Compazine,® Smith Kline & French Laboratories, Philadelphia.

lamine succinate plus pyridoxine hydrochloride (Bendectin®).

However, during this study, in midpregnancy, her reaction to 50 mg. oral hydroxyzine pamoate, taken twice per day for two weeks, was excellent. When, in late pregnancy, she was crossed over to 10 mg. prochlorperazine, taken orally four times per day for another two weeks, her reaction also proved to be excellent. In one patient, results with hydroxyzine were poor but became fair after a crossover to prochlorperazine. A third woman, who prior to this study had been a failure to hydroxyzine, showed now a fair response to prochlorperazine.

Patients who, in course of the present study, were crossed over from prochlorperazine to hydroxyzine showed in one case poor results with the first drug which became fair after her transfer to hydroxyzine. In another woman, a case with probable fetal demise, results were fair on prochlorperazine but became poor when on hydroxyzine. The third patient, prior to this study, had been a failure to prochlorperazine. However, her present response to hydroxyzine was excellent.

Side Effects

Untoward side reactions to hydroxyzine as well as to prochlorperazine were observed in some of the patients. However, on the average, incidence was low, although a comparison (table 2) shows that the percentage of drowsiness and lethargy was considerably higher in the patients on prochlorperazine (33.3 per cent) than in those who received hydroxyzine (4.2 per cent). Other side effects were dryness of the mouth (1 per cent with hydroxyzine and none with prochlorperazine) and dizziness occurring in identical relation. In none of the cases, therapy had to be discontinued. Other adverse effects of one or the other drug have not been observed in course of the present study.

Comments

Comparing the effects of both hydroxyzine and prochlorperazine in therapy of nausea and vomiting, "morning sickness", and pregnancy, it should primordially be considered that both drugs were exclusively administered to parry nausea and vomiting of pregnancy, and that no other purpose was pursued. Evaluation to that end was only dependent on the degree of effectiveness in alleviating the patient from the discomfort caused by her "morning sickness".

According to our results, preference in routine office practice should in this respect be given to hydroxyzine since incidence, expressed in percentage, of the qualifications "excellent" and "good" by far surpasses that of the prochlorperazine group. Another of our motives to prefer hydroxyzine is the remarkable calmative effect the agent has on the expectant mother. Such tranquilizing action, in our opinion, is of primordial importance regarding maintenance of the patient in good condition during a period which *per se* taxes her resistance.

Moreover, in some cases of failure, the patient proceeded to abort or to deliver a stillborn fetus, and thus could have been erased from the total of failures, as would have been done in a number of studies. We have not followed this procedure as not to distort the objectivity of the overall picture.

Side effects, as reflected as intolerance to one or the other agent, were negligible as regards severity. They were noticeable as dryness of the

Table 2
Side Effects

Side Effects	Hydroxyzine			Prochlorperazine		
	No. of	Pts. Per	Cent	No. of	Pts. Per	Cent
Dryness of the mouth	1	1%		—	—	
Dizziness	1	1%		—	—	
Lethargy and drowsiness	4	4.2%		5	33.3%	

mouth, dizziness, lethargy and drowsiness. As regards the latter, the scale by far tips in favor of hydroxyzine.

Hydroxyzine as well as prochlorperazine must be considered excellent drugs in therapy of nausea and vomiting, Notwithstanding, as result of the present study undertaken with particular emphasis on the use in routine office practice, we prefer to employ hydroxyzine for its effectiveness in all phases of nausea and vomiting of pregnancy without distinction of the underlying causes, may they be hormonal imbalance, psychogenic overlay, urinary tract infections, or other. In conclusion we might say that the compound is an indispensable item in the therapeutic arsenal of the physician who attends his pregnant patients in and from his office.

Summary

To evaluate the use of hydroxyzine and prochlorperazine in routine office practice regarding

nausea and vomiting in pregnancy, 95 patients were administered hydroxyzine, and 15 others in identical condition received prochlorperazine for the same purpose. In the patients on hydroxyzine, results were excellent in 68.4 per cent, good in 16.8 per cent, fair in 6.3 per cent, and poor in 8.4 per cent; in those on prochlorperazine they were excellent on 53.3 per cent, good in 13.3 per cent, fair in 26.6 per cent, and poor in 6.6 per cent.

Although both agents can be considered effective in therapy of nausea and vomiting of pregnancy, in routine office practice preference should be given to hydroxyzine for its greater effectiveness and lower incidence of side effects.

501 N. Highland

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Science Exposition to be Held Feb. 17-23

Dr. Edward Teller of the University of California at Berkeley, pioneer physicist responsible for development of the Hydrogen bomb; and Dr. W. Randolph Lovelace, II, Albuquerque, space medicine consultant for NASA and director of the Lovelace Foundation for Medical Education and Research, will be principal speaker at the Southwestern Science Exposition and allied events in El Paso Feb. 17-23, 1964. The El Paso County Medical Society will participate in the exposition, which will be held in the El Paso County Coliseum and which is designed to acquaint students from Arizona, New Mexico, Colorado, Texas, Oklahoma, Utah, Kansas and the Republic of Mexico with the latest developments in science, and encourage them in careers of scientific research.

Dr. Lovelace will speak at the annual dinner of the Texas Society of Professional Engineers at 6 p.m. Saturday in El Paso Manor. Dr. Teller will deliver an address entitled "Nuclear Energy and Space Exploration" in Liberty Hall at 8:15 p.m. Saturday.

The exposition will feature NASA's "Gateway to Space"; the Telstar; and a comprehensive Polaris display by the Navy, including a 12-foot world globe from which model Polaris missiles will be fired. Other exhibitors will include the Heart Association, International Business Machines, the Space Technology Laboratories, the Los Alamos Scientific Laboratories, the Air Force Academy, the American Meteorological Society, the Raytheon Company, ACF Industries, Inc., the Space Nuclear Probe Laboratories, the U. S.

Army Defense Center, White Sands Missile Range, Holloman Air Force Base, the Lovelace Foundation, North American Aviation, Texas Tech, New Mexico State University, Copy Machines, Inc., and El Paso Electric Co.

In addition to the exposition, a pilot Space Science Symposium will be held. This program includes a lecture on the space program by Senator Clinton P. Anderson of New Mexico on Monday, Feb. 17, at 8 p.m. in Liberty Hall; a luncheon and dinner in El Paso Manor on Friday, Feb. 21, with discussions of space problems by leading NASA scientists; and a session in Liberty Hall Friday afternoon. An astronaut is to be present at all activities on Friday, and his major talk will be given in Liberty Hall during the afternoon.

On Saturday, Feb. 22, the Space Science Symposium will continue in Liberty Hall, and featured speakers will include Dr. Thomas G. Barnes, director of the Schellenger Laboratories at Texas Western College, Dr. Titus G. LeClair of General Atomics, Col. Harold O. Johnson, Fort Bliss, a member of the U. S. Army Combat Developments Command, Dr. Hubertus Strughold, chief scientist of Brooks Air Force Base Aerospace Medicine Division, and a Polaris submarine commander. One of these speakers will be featured at a luncheon that day in El Paso Manor.

Tickets for the Friday afternoon program and the dinner on Saturday evening may be secured by physicians from Mrs. Molly Johnson, executive secretary, at the El Paso County Medical Society's Turner Home, 1301 Montana Avenue.

Symposium To Be Held In Albuquerque Feb. 15

The Bernalillo County Medical Association and the New Mexico Chapter of the American Academy of General Practice will sponsor the one-day Lederle Symposium, February 15, 1964, in Albuquerque in the Hilton Hotel. The Symposium has been approved by the AAGP for five hours credit in Category One.

Subjects and speakers are as follows:

"Wheezes, Sneezes and Other Diseases", Alfred S. Evans, M.D., Professor and Chairman of the Department of Medicine, University of Wisconsin School of Medicine, Madison.

"The Newer Viruses", Thomas G. Ward, M.D., Director of Virus Research, Microbiological Associates, Washington, D.C.

"Viral Immunization Now and Then", Saul Krugman, M.D., Professor and Chairman of the Department of Pediatrics, New York University School of Medicine.

"Antibiotics-Prophylactically and Long Term Use", Morton Hamburger, M.D., Professor of Medicine, University of Cincinnati College of Medicine.

"Infection and the Surgical Patient", Howard H. Steel, M.D., Assistant Professor of Orthopedics, Temple University School of Medicine, Philadelphia.

"Infection and the Gynecologic Patient", M. Edward Davis, M.D., Professor and Chairman of the Department of Obstetrics and Gynecology, University of Chicago School of Medicine.

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MEETINGS

1964 Southwestern Meeting in Las Vegas



Dr. Shallenberger

The 46th annual meeting of the Southwestern Medical Association will be held in Las Vegas, Nevada, October 22-24, 1964, Dr. Frank A. Shallenberger, Tucson, president, has announced.

Selection of Las Vegas as site for the meeting was made at the 1963 session in El Paso. The Association met in Las Vegas in 1961.

Dr. Shallenberger also has reported that the Flamingo Hotel will be headquarters for the meeting.

The Association's recent meeting in El Paso was one of the most successful in recent years and Dr. Shallenberger expressed his appreciation to the New Mexico Medical Society for holding its Interim meeting in conjunction with the Southwestern meeting. He also thanked exhibitors, who

turned out in greater numbers for the meeting than ever before in the Association's post-war history. He gave special thanks to the Deseret Pharmaceutical Co. of Salt Lake City for the cocktail party it gave at the annual dinner dance and to Eli Lilly and Co. for providing the orchestra at the dance.

Dr. Shallenberger, a past president of the Arizona Academy of General Practice, received his B.S. from the University of Maryland and his M.D. from the University of Maryland School of Medicine. He served two years in the Army with the Virus and Rickettsial Disease Commission and has been engaged in the General Practice of Medicine in Tucson since 1950. He is a past president of the Civitan Club of Tucson and the Southern Arizona Chapter of the Arizona Academy of General Practice.

Indian Health Year

The Association on American Indian Affairs has designated 1964 as Indian Health Year.

The AAIA, a national Indian welfare organization, will devote a major part of its program in the new year to seeking immediate and long-range improvements in American Indian health.

Preventative medicine and maternal and child health will be given special attention.

Announcing Indian Health Year, Dr. Carl Muschenheim, chairman of the AAIA's National Committee on Indian Health, stated, "No group of citizens suffers from graver health problems than American Indians and Alaskan natives".

Compared with rates for the general population, Dr. Muschenheim reported, "the Indian infant death rate is double, gastroenteritis deaths are six times higher, tuberculosis deaths four times higher, and T. B. incidence is almost eight times as great".

"These statistics show the immediate need for stepped-up programs at all levels of government," he added.

The AAIA hailed the progress that has been made since 1955 when the responsibility for Indian health was transferred from the Bureau of Indian Affairs to the Public Health Service.

Dr. Muschenheim noted that in the last eight years Indian infant mortality has declined by 34 per cent, tuberculosis incidence by 50 per cent, T. B. deaths by 61 per cent, and gastroenteritis deaths by 57 per cent.

According to the AAIA, Indian health has reached a critical point where it can continue moving forward or decline sharply.

"The federal Indian health program cannot be allowed to stagnate for lack of sufficient funds to provide a balanced health program," Dr. Muschenheim stated, "A balanced program will require greater federal expenditures on preventative medicine than are currently scheduled."

"It is false economy to deny adequate funds for Indian field health service activities," he declared. "Federal monies invested in preventative medicine today will save the taxpayer millions of dollars

for hospital care tomorrow and will help insure that Indian families enjoy the same health standards as the rest of the nation."

The AAIA also called for greater coordination of activities between federal, state, and local governments and private welfare agencies.

It plans to sponsor jointly with Indian tribes a number of regional health conferences and, in the fall of 1964, a national Indian health conference.

Carrie Tingley Hospital Plans Expansion

A three-year statistical summary of work being done at Carrie Tingley Hospital at Truth or Consequences, N. M., shows that the hospital is admitting more patients, keeping the bed occupancy the same and doing a great deal more work, Dr. Douglas W. McKay, chief surgeon, has reported in a recent issue of the New Mexico Medical Society Newsletter.

"The summary," said Dr. McKay, "shows the increased work we are doing in the Out-Patient Department, X-Ray, Lab and Bracing, and yet we are not increasing our patients' days or bed occupancy. This, as you know, can be done by less time spent in the hospital prior to surgery, earlier discharging and more thought devoted to each case. We shall be able to improve this even more once we have a Medical-Social Department.

"We now have the service of two Pediatricians who visit the Hospital once a week and this has improved our care. We feel that our care should be directed toward the total child and recognize the fact that children have other things wrong with them aside from orthopaedic problems. We are in the planning process of building a new surgical suite and renovating a ward that has not been in use.

"I would like to have the physicians in New Mexico know that if they have any patient they are interested in getting an earlier admission for or faster service, they should drop me a note or call me direct. I would like to extend an invitation to all doctors throughout the state to visit the Hospital."



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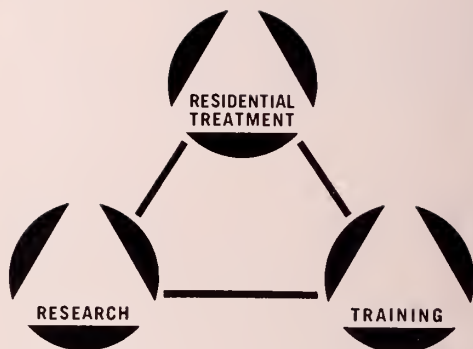
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and El Paso County Medical Society

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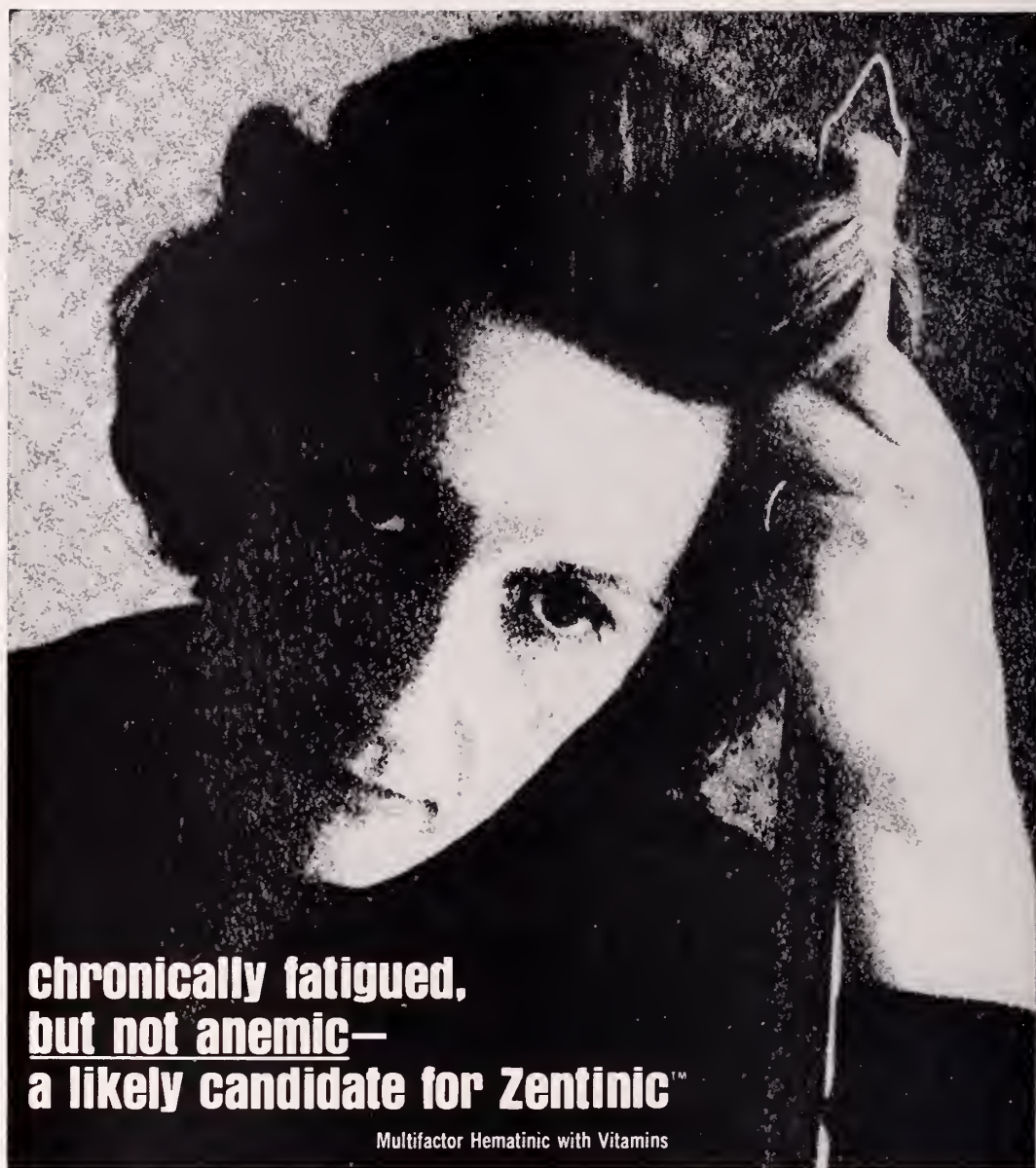
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VOL. 45, NO. 3

March, 1964



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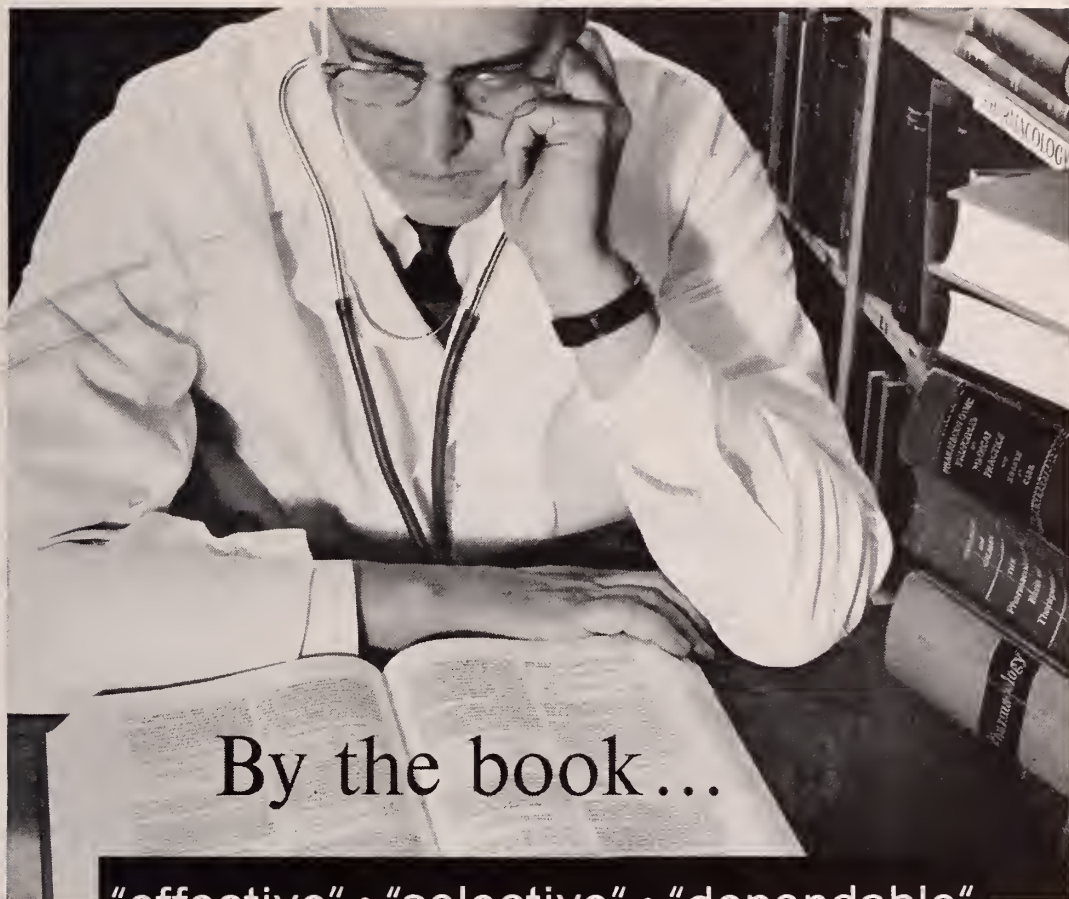
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1. Editorial: Postgrad. Med., 34:102, 1963. 2. Brise, H., and Hallberg, L.: Acta med. scandinav., 171(Supplement No. 376):23, 1962. 3. Sheehy, T. W.: Blood, 18:623, 1961.

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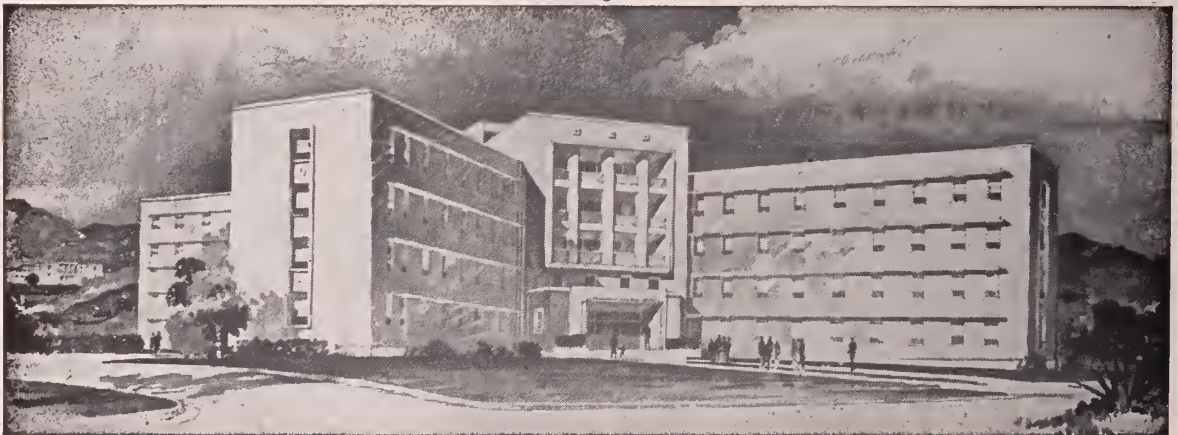
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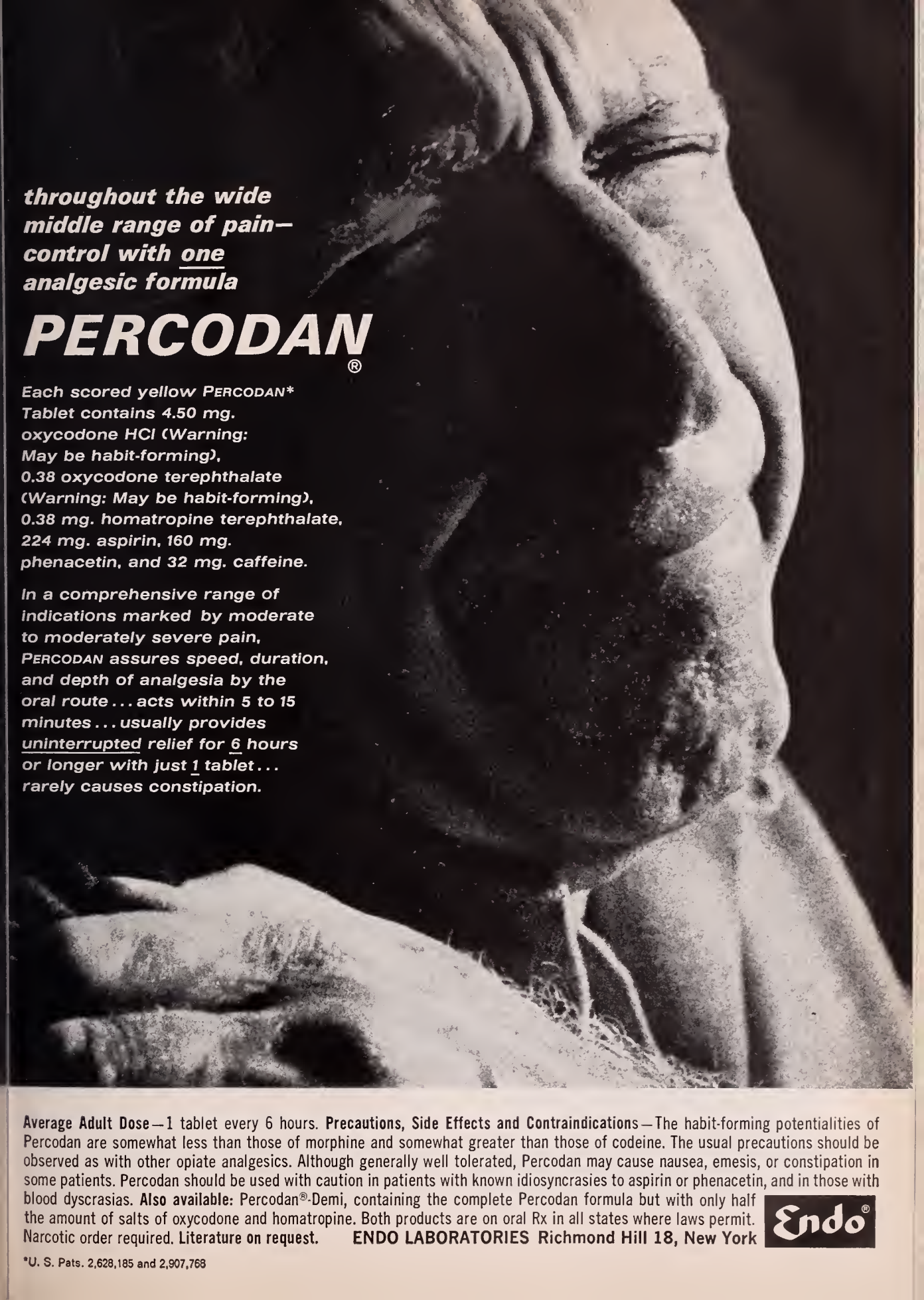
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Treatment of Mononucleosis By M. R. Chappel, M.D., Director, Student Health Service, The University of Arizona, Tucson	Page 87

Coming Meetings

New Mexico Medical Society, 82nd Annual Meeting, Business Sessions Ramada Inn, Clinical Program La Caverna Hotel, Carlsbad, April 13-17, 1964.

Texas Medical Association, 97th Annual Meeting, Houston, April 23-26, 1964.

New Mexico Chapter, American Academy of General Practice, Summer Clinic, Ruidoso, N. M., July 20-23, 1964.

Western Association of Railway Surgeons, Annual Meeting, Sun Valley, Idaho, Oct. 7-11, 1964.

Southwestern Medical Association, 46th Annual Meeting, Flamingo Hotel, Las Vegas, Nev., Oct. 22-24, 1964.

Southwest Obstetrical and Gynecological Society, Annual Meeting, El Paso, Oct. 29-31, 1964.



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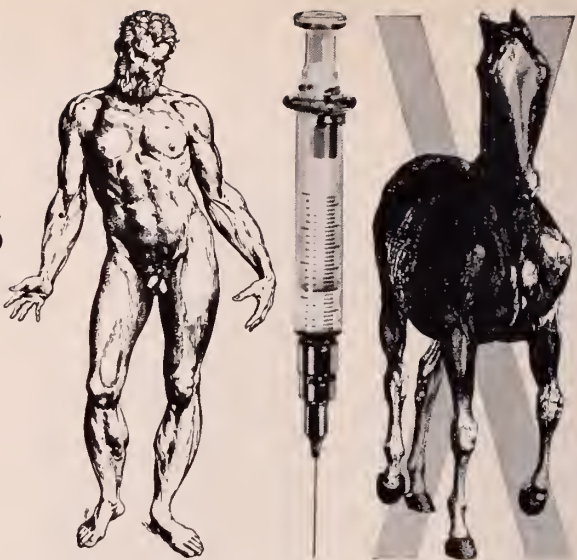
^{*}Roseman, E.: *Neurology* 11:912, 1961.

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References: 1. Rubbo, S. D., and Suri, J. C.: Brit. M.J. 2:79 (July 14) 1963. 2. Rubinstein, H. M.: Am. J. Hyg. 76:276, 1962. 3. Stafford, E. S.; Turner, T. B., and Goldman, L.: Ann. Surg. 140:563, 1954. 4. Effective tetanus protective level established by Sir David Bruce.



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N. M. Medical Society to Meet in Carlsbad April 14-17

The 82nd annual meeting of the New Mexico Medical Society will be held in Carlsbad, N.M., April 14-17, 1964.

Scientific speakers will be:

Dr. Solomon Papper, Albuquerque, Professor and Chairman of the Department of Medicine at the University of New Mexico School of Medicine.

Dr. Ernest R. Simon, Albuquerque, Assistant Professor of Medicine at the University of New Mexico School of Medicine.

Dr. Archie H. Baggenstoss, Rochester, Minn., Consultant and head of the Section of Experimental and Anatomic Pathology of the Mayo Clinic.

Dr. James S. Clarke, Albuquerque, Professor and Chairman of the Department of Surgery at the University of New Mexico School of Medicine.

Dr. J. E. Miller, Dallas, Clinical Professor of Radiology at the University of Texas Southwestern Medical School.

Dr. James S. Miles, Denver, Associate Professor and head of the Division of Orthopaedics at the University of Colorado School of Medicine.

Dr. Douglas W. McKay, Truth or Consequences, N.M., Chief Surgeon at Carrie Tingley Crippled Children's Hospital.

Public Lecture

A highlight of the annual session will be a public lecture at 8 p.m. on Wednesday, April 15, in the Carlsbad Junior High School Auditorium with Dr. Milford O. Rouse, Dallas, Speaker of the House of Delegates of the AMA speaking on "American Medicine; Its Current Problems and Its Future", and Frank C. Hibben, Ph.D., Albuquerque, Professor of Anthropology at the

University of New Mexico, talking on "The African Bushman".

Business sessions will be held in the Ramada Inn and clinical programs will be at the La Caverna hotel.

The House of Delegates will hold its first session at 2 p.m. Tuesday, April 14, in the Ramada Inn and will reconvene for its second meeting at 2:30 p.m. Wednesday, April 15, in the Ramada Inn.

Wednesday, April 15, will be devoted to an Orientation Course in the Ramada Inn. Speakers and their subjects will be:

Henry A. Kiker, Jr., LL.B., Albuquerque, "Prevention of Malpractice"; Dr. Emmitt M. Jennings, Roswell, Councilor of the New Mexico Medical Society, "Insurance Programs"; and Dr. R. P. Beaudette, Raton, Vice-President of the New Mexico Medical Society, "Pitfalls and Stumbling Blocks". Two speakers yet to be announced will talk on "Doctors' Responsibility in Law Enforcement", and "Narcotics".

Luncheon Speaker

Dr. R. C. Derbyshire, Santa Fe, Secretary-Treasurer of the New Mexico Board of Examiners and a Past President of the state medical society, will speak at a luncheon for new members Wednesday noon in Ramada Inn on "Candidates I Have Known".

Officers of the society are Dr. C. Pardue Bunch, Artesia, president; Dr. Omar Legant, Albuquerque, president-elect; Dr. Robert P. Beaudette, Raton, vice-president; Dr. Hugh B. Woodward, Albuquerque, secretary-treasurer; Dr. John F. Conway, Clovis, speaker of the House of Delegates; Dr. John T. Parker, Farmington, vice-speaker; and Dr. Leland S. Evans, Las Cruces, delegate to the A.M.A. Complete program follows.

PROGRAM
Tuesday, April 14

- 2:00 p.m. First House of Delegates Meeting
Ramada Inn
- 3:30 p.m. Recess for Reference Committee Meetings

Wednesday, April 15

- 8:00 a.m. Registration
Ramada Inn

Orientation Course

- 9:00-9:15 a.m. Welcome
C. Pardue Bunch, M. D.,
Artesia
President, New Mexico
Medical Society
- 9:15-9:45 a.m. Doctors and the Court
(Speaker to be announced)
- 9:45-10:15 a.m. Prevention of Malpractice
Henry A. Kiker, Jr., LL.B.,
Albuquerque
- 10:15-10:30 a.m. Insurance Programs
Emmit M. Jennings, M. D.
Roswell
Councilor, New Mexico
Medical Society
- 10:30-10:45 a.m. Coffee
- 10:45-11:05 a.m. Pitfalls and Stumbling Blocks
R. P. Beaudette, M.D.,
Raton
Vice-President, New
Mexico Medical Society
- 11:05-11:35 a.m. Narcotics
(Speaker to be announced)
- 11:35-12:05 p.m. Doctors' Responsibility in
Law Enforcement
(Speaker to be announced)
- 12:05-12:20 p.m. Question and Answer Period
- 12:30 p.m. Luncheon for New Members
Ramada Inn
Speaker: R. C. Derbyshire,
M.D., Santa Fe
Secretary-Treasurer, New
Mexico Board of Examiners
"Candidates I Have
Known"

- 2:30 p.m. Second House of Delegates Meeting
Ramada Inn

- 3:00 p.m. Registration for Clinical Program
La Caverna Hotel

- 8:00 p.m. Public Lecture
Junior High School
Auditorium

Presiding: C. Pardue Bunch,
M.D.

"American Medicine; Its
Current Problems and Its
Future",

Milford O. Rouse, M.D.,
Dallas, Speaker, House of
Delegates, American Med-
ical Association

"African Bushman"

Frank C. Hibben, Ph.D.,
Albuquerque, Professor of
Anthropology, University of
New Mexico

Thursday, April 16
General Meeting
La Caverna Hotel

- 8:00 a.m. Registration

- 9:00 a.m. Opening Ceremonies

Presiding: R. C. Derbyshire,
M.D.

Invocation
Reverend Willis E.
Plapp, Carlsbad

Welcome
Honorable Hampton
Martin, Mayor,
City of Carlsbad

R. W. McIntire, M.D.,
Carlsbad
President, Eddy County
Medical Society

Presidential Address
C. Pardue Bunch, M.D.

First Clinical Session

Presiding: C. Pardue Bunch, M.D.

- 9:30 a.m. The Interpretation of Laboratory Data in Clinical Medicine
Solomon Papper, M. D., Albuquerque, Professor and Chairman of the Department of Medicine, University of New Mexico School of Medicine
- 10:00 a.m. A Physiological Approach to the Diagnosis of Anemia
Ernest R. Simon, M.D., Albuquerque, Assistant Professor of Medicine, University of New Mexico School of Medicine
- 10:30 a.m. Visit Exhibits
- 10:45 a.m. The Accuracy of the Pathologist's Diagnosis of Liver Biopsies
Archie H. Baggenstoss, M.D., Rochester, Minn., Consultant and Head of the Section of Experimental and Anatomic Pathology, Mayo Clinic
- 11:15 a.m. Panel Discussion
Laboratory Medicine
Drs. Papper, Simon, Baggenstoss and Miller
- 12:30 p.m. Square Table Luncheon
La Caverna Dining Room
Question and Answer Period
Participation by Guest Speakers

Second Clinical Session

Presiding: Omar Legant, M.D., Albuquerque
President-Elect, New Mexico Medical Society

- 2:00 p.m. Changing Surgical Perspectives in the Management of Peptic Ulcer
James S. Clarke, M.D., Albuquerque, Professor and Chairman of the Department of Surgery, University of New Mexico School of Medicine

- 2:30 p.m. The Anatomic Basis of So-Called Primary Biliary Cirrhosis
Archie H. Baggenstoss, M.D.
- 3:00 p.m. Decubital Cholecystography
J. E. Miller, M.D., Dallas, Clinical Professor of Radiology, University of Texas Southwestern Medical School
- 3:30 p.m. Visit Exhibits
- 3:45 p.m. Panel Discussion
Gastro-Enterology
Drs. Clarke, Baggenstoss, Miller and Papper
- 7:00 p.m. Social Hour
Ramada Inn
- 8:00 p.m. Dinner Dance
Ramada Inn

Friday, April 17

Third Clinical Session

Presiding: R. P. Beaudette, M.D.

- 9:00 a.m. Oxygen Potentiation in Irradiation Therapy
J. E. Miller, M.D.
- 9:30 a.m. Orthopaedic Seminar
James S. Miles, M.D., Denver, Associate Professor and Head of the Division of Orthopaedics, University of Colorado School of Medicine
Douglas W. McKay, M.D., Truth or Consequences, N.M.
Chief Surgeon, Carrie Tingley Crippled Children's Hospital
- 10:30 a.m. Visit Exhibits
- 10:45 a.m. Subject to be Announced
James S. Miles, M.D.
- 11:15 a.m. Panel Discussion
Bones and Joints
Drs. Miller, Miles, McKay and Baggenstoss
- 12:00 noon Specialty Meetings

Dr. Hoffman Elected President of Texas District One Medical Association

Dr. George A. Hoffman of Fort Stockton was elected president of District One of the Texas Medical Association at its annual meeting in El Paso Feb. 1, 1964. Other new officers are Dr. Ira A. Budwig, El Paso, president-elect; Dr. William R. Gaddis, El Paso, secretary-treasurer; and Dr. Mario Palafox, El Paso, secretary-treasurer-elect. Dr. Russell Holt, El Paso, was named councilor to succeed Dr. Charles E. Oswalt, Jr., Fort Stockton, who has completed nine years of service in that office. Dr. John C. Hundley, Fort Stockton, was elected vice-councilor.

Pecos, Texas, was selected as site for the 1965 meeting, which is scheduled to be held March 6.

Special tribute was paid to the late Dr. Jim Camp of Pecos, who died just prior to the meeting and who had practiced medicine for 64 years in Pecos. Dr. Camp was selected Texas General Practitioner of the Year in 1950 and was second that same year in the national competition for the

General Practitioner of the Year award. Respects also were paid to the late Dr. Nathan Kleban of El Paso, who was elected president of the District One organization at the 1963 Pecos meeting and who died during his term of office.

The meeting was held in conjunction with a course the following day, Feb. 2, on Current Concepts in Selected Disease States. The course was presented at Thomason General Hospital and was sponsored by the Division of Continuing Education of the Texas Graduate School of Biomedical Sciences at Houston.

At the District One banquet Dr. Robert Mayo Tenery of Waxahachie, president of the Texas Medical Association, told how Texas is leading the nation in providing medical care for the aged. He reported that hospital, medical, surgical, radiation and nursing home benefits have been provided to those on Old Age Assistance for two years through the Kerr-Mills law at a total cost



DISTRICT ONE—Attending the joint District One meeting of the Texas Medical Association and postgraduate session in El Paso, Feb. 1 & 2, 1964, were, from left, Dr. William R. Gaddis, El Paso, new secretary-treasurer of District One and immediate past president of the El Paso County Medical Society, Dr. Robert Mayo Tenery, Waxahachie, president of the Texas Medical Association, Dr. George A. Hoffman, Fort Stockton, new District One president, Dr. Russell Holt, El Paso, new councilor, Dr. Charles E. Oswalt, Jr., Fort Stockton, retiring councilor, and Dr. J. Leighton Green, El Paso, postgraduate coordinator. Not shown are Dr. Ira A. Budwig, El Paso, president-elect, Dr. Mario Palafox, El Paso, secretary-treasurer-elect, and Dr. John C. Hundley, Fort Stockton, new vice-councilor.

of \$40 million. This program has been in effect for 228,500 needy aged over 65.

Dr. Tenery said the balance of the state's 745,000 residents who are 65 and older and who need medical assistance can be provided for through a Constitutional Amendment to be voted on in November.

He said that this amendment, if approved, would broaden the existing Kerr-Mills program and provide for those elderly not on old age assistance who are unable to pay for necessary medical services.

He said that Texas now ranks first among all states in the percentage of the aged who have one or more health insurance policies. Seventy-two per cent of the elderly in Texas are covered by health insurance, as compared with the national average of 60 per cent. This achievement resulted from the Blue Cross-Blue Shield Senior Texan Service and a special program in October, 1963, by which 61 companies are underwriting low-cost health insurance under the Texas-65 Plan.

Action Taken

Dr. Tenery said that on the national level all

54 states and territories have taken some action for implementing the Old Age Assistance phase of the Kerr-Mills law. A total of 42 states have taken steps to provide help under the medical assistance for the aged phase, similar to the plan involved in the constitutional amendment vote in Texas in November. Thirty-five of these are already in operation, Dr. Tenery said.

Scientific speakers at the District One meeting were Dr. Russell L. Deter, Dr. C. M. Stanfill, Dr. Gilbert Landis and Dr. L. W. Neill, all of El Paso.

Speakers at the postgraduate course the following day were Dr. Irving Schweppe, Jr., Houston, who talked on "Chronic Pulmonary Disease-Altered Physiology"; and "The Management of Chronic Pulmonary Disease"; Dr. Robert Nelson, Houston, whose subjects were "Viral Hepatitis" and "Evaluation of Liver Function Tests"; and Dr. Sebron Dale, Houston, who talked on "Nutritional Care of the Elderly Patient" and "Pre-operative and Postoperative Care of the Elderly Surgical Patient".

The postgraduate course is supported in part by an educational grant from Merck Sharp & Dohme Postgraduate Program.



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Parotid Masses in Children

C. HERBERT FREDELL, M.D., *Flagstaff, Ariz.*

Parotid masses in children are commonly inflammatory in origin. They are usually self limited in their clinical course and rarely require surgical intervention. A parotid mass in a child that requires surgical therapy is rare.^{2, 3}

When a localized mass is found in the parotid region in a child, one should remember that the pathological potentialities are identical with those in an adult. The same possibilities of malignancy exist and the same surgical therapy is required that is required in an adult.^{3, 6}

The parotid gland has been the victim of surgical misadventures in the past. Poorly planned operations on the parotid gland are familiar to many surgeons. Failure to appreciate the need for meticulous, accurate surgical technique and lack of awareness concerning the frequency of malignancy in a discrete mass in the parotid gland are probably the two most frequent reasons for some of the poor parotid surgery in the past.⁷

When a surgeon finds a discrete mass in the parotid gland of a child he should seriously consider a biopsy of the mass prior to definitive surgical therapy. He should also arrange for consultation with a pathologist at the time of surgery for possible frozen section examination of the mass. At times he might do an excisional biopsy in the form of a superficial lobectomy. The latter alternative will often serve the dual role of adequate therapy as well as biopsy.

Local excision of a mass in the parotid is mentioned only to condemn it. The story of the benign mixed tumor of the parotid and its frequency of implantation at the operative site is ample reason

to avoid a local limited excision procedure in any mass in the parotid. The physical findings and the gross pathological findings seen by the surgeon do not always agree with the microscopic examination of the mass. Adequate initial surgery in the parotid region eliminates the dangers of repeated surgery in an area where there are hazards enough during the first procedure.

A thorough knowledge of the anatomy and variations of the facial nerve is essential to embark upon any parotid surgery. The technique of parotid lobectomy described by Beahrs¹ is recommended.

The pathology of the parotid gland has been adequately recorded.^{3, 7} It is beyond the scope of this paper to discuss the surgical pathology of the parotid gland. It is only mentioned to reemphasize the identical characteristics found in children as those found in adults.

In recent years the author has seen three different types of surgical masses in the parotid gland in children. Each case has presented problems and demonstrated points of interest that will be discussed.

Case Reports

Case 1. A 4½-year-old girl was admitted to the Flagstaff Hospital on September 4, 1958, with a mass in her left parotid for one week. Her mother related that she had several bouts of swelling in the left parotid gland during the past six months. Following each of these bouts there would always be a residual mass which never receded in spite

of antibiotics and other therapy. This residual mass had progressively enlarged until the date of admission.

Physical examination revealed a two cm. diameter hard mass within the parotid gland on the left side. Several small soft lymph nodes were palpable along the sternocleidomastoid muscle. Chronic sialadenitis was considered to be the probable diagnosis. However, the possibility of tumor was not excluded.

On September 5, 1958, a superficial parotid lobectomy was performed. The facial nerve was identified at the stylomastoid foramen and all of its branches were identified in the course of the dissection. The mass was found to lie in the substance of the superficial lobe of the gland.

Examination of the mass revealed a one cm. diameter cavity in its center containing pus from which gram positive rods were cultured. Microscopically there was evidence of widespread chronic inflammation with some eosinophils and evidence

of fibrosis of the glandular structure of the gland. The pathologist felt that this was acute and chronic sialadenitis. (fig. 1 & 2)

Postoperatively she received penicillin. The wound healed by primary intention and there was no facial nerve paresis.

Follow-up examination revealed no further episodes of parotid inflammation or swelling for five years.

Comment

A case of recurrent swelling in the parotid gland in a child has been presented. It was significant that the inflammatory process was confined to the superficial lobe of the gland and lobectomy effected complete cure of the painful mass. It would be unlikely that simple drainage of the abscess would effect such a complete cure.

It might be added that the therapy of choice in a case of pyogenic abscess of the parotid gland

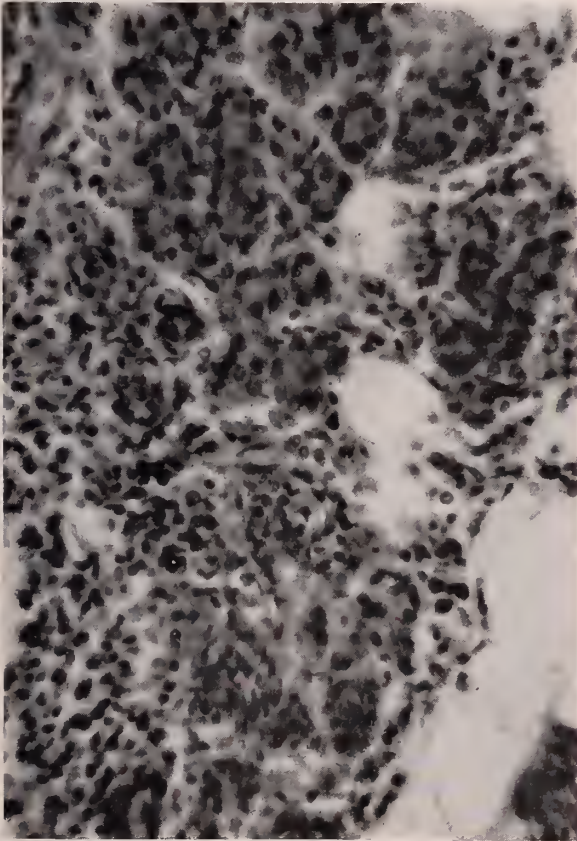


Figure 1

Photomicrograph at 43x shows widespread chronic inflammation with scattered eosinophils and intermingling of the acinar tissue with inflammatory cells.

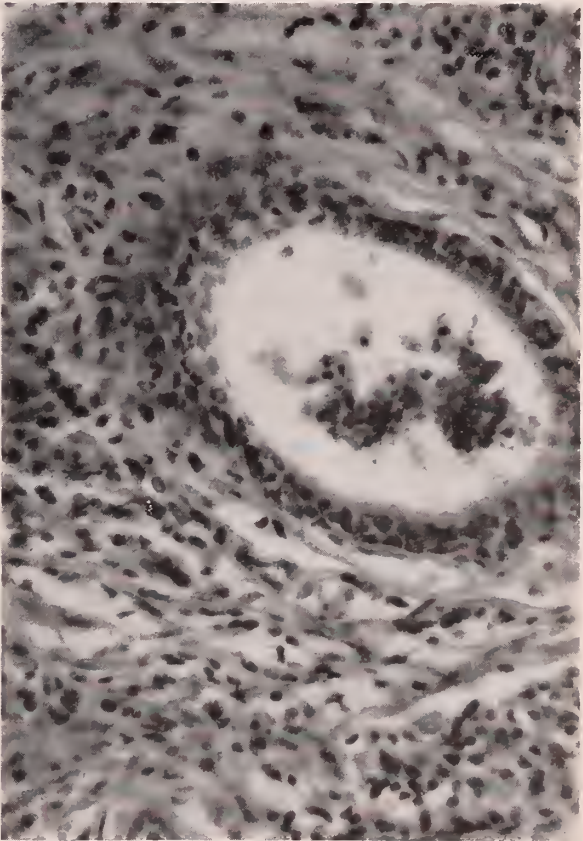


Figure 2

A photomicrograph at 43x shows a parotid duct with inflammatory exudate in the lumen. Periductal fibrosis and inflammation can also be seen.

remains antibiotics and adequate drainage through a correctly placed incision. When the inflammatory process is recurrent and accompanied by a persistent mass and pain, one should consider more radical therapy than simple drainage.

Keenan and Beahrs⁴ have pointed out that any mass in the parotid should be treated as malignant until it can be proven microscopically to the contrary. They noted that partial parotidectomy is indicated in cases of chronic or recurrent sialadenitis when the patient has had frequent attacks of infection; when the patient has persistent pain, and when there is a persistent and irreversible mass in the parotid.

They further noted that the surgeon should base his decision to intervene surgically only on the clinical grounds and not on changes seen on sialography. When a partial parotidectomy was done in over 200 cases they noted that the remaining tissue was no problem to the patient postoperatively.

Welch and Henren⁷ noted that masses may develop in the parotid due to recurrent uncontrolled infection with abscess formation. They noted that these masses should be removed only if the surgeon is familiar with the necessary surgical technique involved.

Case 2. A three-year-old boy was admitted to the Flagstaff Hospital on July 26, 1962, complaining of a mass in the right parotid gland for the past three months. His mother noted that the mass had slowly enlarged to date. He complained of no pain.

Physical examination revealed a 2x3 cm. diameter cystic mass lying in the superficial lobe of the parotid gland on the right side. There were no enlarged lymph nodes.

On July 27, 1962, a superficial parotid lobectomy was done. The mass was found to be a multiloculated cyst containing opalescent fluid. Microscopically the cyst wall was found to contain foreign body giant cells and numerous lymphocytes arranged in a follicular pattern occasionally. The cyst wall did not contain an epithelial lining. (fig. 3)

Postoperatively his wound healed by primary intention. He had a mild facial paresis for three days which improved rapidly. For 11 months he has remained free of any masses in his parotid.



Figure 3

The photomicrograph at low power (3x) shows the cyst wall with lymphoid follicles and no epithelial lining. Parotid tissue is seen at the lower right hand margin of the picture.

Comment

A case of a cystic mass in the parotid gland in a child has been presented. Mihalyka⁵ reported a recent case of bilateral polycystic parotid glands and found 28 cases of cyst of the parotid reported in the literature. He noted that the differential diagnosis often includes a mixed tumor of the parotid gland.

The etiology of a cyst of the parotid gland has been thought by most investigators to be a retention of secretions while some others believe it to be due to a congenital abnormality. Treatment of a cyst of the parotid gland has been roentgen ray therapy, antibiotics and surgical excision.

It is the author's feeling that surgical excision is the therapy of choice in all discrete masses in the parotid gland in children providing they are not viral or bacterial inflammations.

Case 3. A 14-year-old boy was seen on September 5, 1962, complaining of a painless mass in his neck for three months. The mass had begun as a small hard area and had progressively enlarged. He had no recent bouts of pharyngitis or dental problems.

Physical examination revealed a hard 1½x2 cm. diameter mass just below the angle of the mandible and just posterior to it between the sternocleidomastoid muscle belly and the mandible. The mass was not freely movable and seemed attached at its base. There were no enlarged regional lymph nodes.

An excisional biopsy was done. The tumor had arisen from the anterior lateral aspect of the tail of the gland. Microscopically it was a benign mixed tumor of the parotid gland. There was an encapsulated mass of tissue with cellular fibrous or cartilaginous appearing stroma in which there were nests and strands of epithelial cells.

The epithelial cells were fairly small and dark

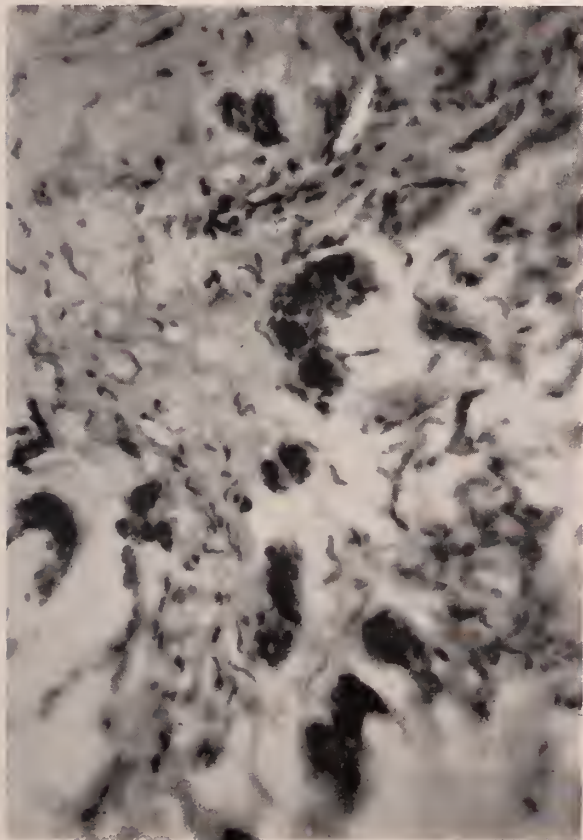


Figure 4

A photomicrograph at 43x shows nests of epithelial cells amongst the cartilaginous stroma. The mixture of cellular elements is noted.

to staining. Occasionally they formed duct-like structures. In certain areas these cells blended with the adjacent stroma. There were no mitotic figures seen within the cells. The fibrous connective tissue was scant with a few dividing strands. (fig. 4 & 5)

On September 12, 1962, he was admitted to the Flagstaff Hospital where on September 13, 1962, an excision of the biopsy site together with an en bloc removal of the superficial lobe of the parotid gland was done without incident. Examination of the parotid lobe revealed no evidence of residual tumor.

Postoperatively the wound healed by primary intention. He had no facial nerve problems and has continued for several months with no evidence of recurrence locally.

Comment

A case of a benign mixed tumor of the parotid

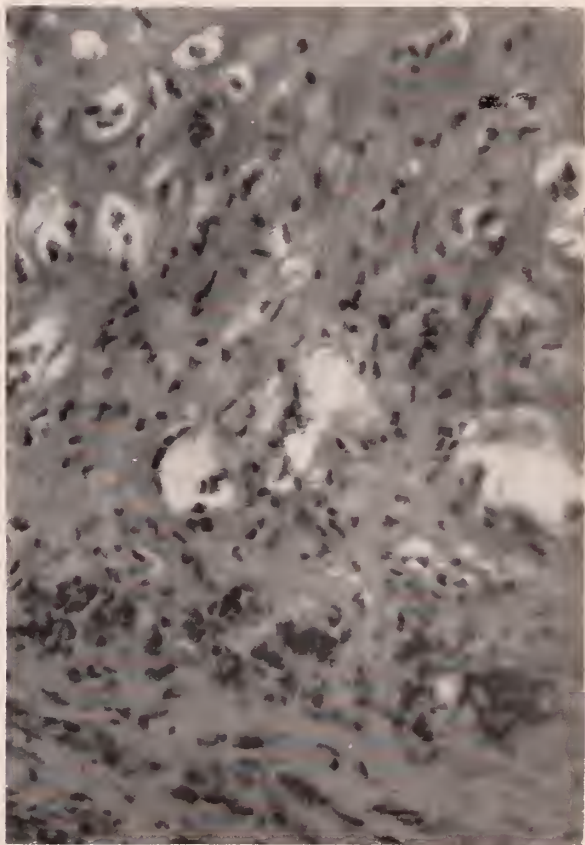


Figure 5

A photomicrograph at 43x shows the cartilaginous type of cells seen in a mixed tumor of the parotid. The small dark staining epithelial cells are seen to blend with the stroma and capsule of the mass. There were no mitotic figures or any evidence of invasion.

gland in a 14-year-old boy has been presented. The mass was biopsied prior to the definitive surgical therapy. The biopsy incision was planned so that it could be excised with the tract of the surgery if further therapy would be necessary. Further therapy was necessary and carried out without delay. Superficial parotid lobectomy was done. It is admittedly too early to tell if the patient will have any local recurrence. The author is optimistic that this will not occur in view of the therapy.

In a study of 20 cases of salivary gland tumors in children, Reiquam⁶ noted the first requisite the surgeon must satisfy is that of excluding swellings due to acute inflammation. In his series of cases the majority were due to vascular malformations. There were two cases of benign mixed tumors of the parotid.

The rarity of parotid tumors in children was noted by Howard³ who reported only 21 cases of parotid tumor in children under 16 years of age over a 22 year period. Byers et al² reported in a series of 470 salivary gland tumors only 23 were present in patients under 18 years of age.

They noted 14 of the 23 cases were a benign mixed tumor while six cases were malignant tumors. A difference in symptoms between the benign and malignant tumor was noted in their series. Usually the benign tumor did not produce local pain or have tenderness to examination. Its growth was slow and did not become as densely adherent to the adjacent tissue as the malignant tumor. The wisdom of biopsy as the first step was stressed in his report.

Mixed benign tumors of the parotid are notoriously easy to implant and characteristically recur as multiple local nodules. Maintaining the anatomical integrity of this tumor mass together with a margin of normal tissue should be the objective of the surgeon. Usually the tumor is located in the superficial lobe of the parotid. If this is the case, a parotid lobectomy is adequate therapy. If the tumor is located deeper in the gland, every effort should be made to preserve the facial nerve while removing the underlying parotid tissue.

If a parotid tumor is malignant a total parotidectomy and radical cervical lymphadenectomy is

the treatment of choice. This is best performed as an en bloc single operative procedure. Occasionally circumstances will require an initial total parotidectomy followed by a radical neck dissection at another time.

The technique of a thorough radical neck dissection has been adequately discussed by many authors. The personal preference of the author is to include the platysma and sternocleidomastoid muscle in the specimen. If the facial nerve is involved in the tumor it should be sacrificed without hesitation. It can be preserved on occasion.

Overcoming the disability of a facial paresis can be a time consuming troublesome process for the patient. Fascial sling operative procedures and facial nerve grafting procedures have been done with success in many instances of facial nerve paresis. This disability must be considered whenever any parotid mass is discovered by the doctor who then recommends its removal.

Summary

1. Three cases of parotid masses in children have been presented. One case was chronic sialadenitis with abscess, one case was a non-epithelial cyst and one case was a benign mixed tumor.

2. Parotid masses in children that are not inflammatory in origin are rare.

3. The wisdom of complete excision of a mass together with a generous margin of normal tissue in the parotid gland has been reemphasized. Superficial parotid lobectomy was the effective procedure in all of these cases. It is recommended for similar problems.

4. Parotid lobectomy is a procedure that requires meticulous surgical technique and thorough knowledge of the anatomy involved.

5. The surgeon should realize that nearly one-third of all parotid tumors are malignant. If he has any question about the nature of a parotid mass prior to surgery, an initial biopsy should be done. If a prior biopsy is not done and the gross appearance of the tumor is suspicious at the time of surgery, the surgeon should obtain an immediate frozen section examination to search for malignancy. If malignancy is found, a simultaneous radical neck dissection should be done.

Acknowledgment

The photomicrographs were taken by Dr. George Sharf of Diagnostic Laboratory, Phoenix, Arizona.

120 W. Fine Av.

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Treatment of Mononucleosis

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The object of this experiment was to determine the effectiveness of four different steroids in the treatment of mononucleosis in comparison with cortisone in corresponding strength dosage. The steroids and the tablet strength used were Alphadrol 1.5 mg., Medrol 4 mg., Cortef 20 mg. and Delta Cortef 5 mg.: all of which were supplied by the Upjohn Company gratuitously.

In as far as possible every case was treated the same with the exception of the drug used. The results were then compared with the results obtained in 111 cortisone treated cases* and with the results obtained in 34 consecutive cases of mononucleosis treated with cortisone immediately preceding this experiment.

The reason for the comparison of the two different sets of cortisone treated cases was to see if there was any variation in the results between the two as there was a time interval of approximately two years between the two sets of cases. Since the results compared very favorably only the average total dosage and the average days treated were included in these statistics.

The experiment was conducted as follows. All suspected cases received a complete blood count, heterophile test and urinalysis. Every case with a positive heterophile of 112 or greater was assigned

a number from one through four in rotation. A total of 36 consecutive cases were thusly assigned; two of which were later removed from the total statistics because they received two different steroids in their treatment. All number one cases received Alphadrol, number 2's Medrol, number 3's Cortef and number 4's Delta Cortef. A high protein diet and an extra hour's rest per day were recommended. Contact sports were forbidden. All cases attended classes and were seen by a physician every other day as outpatients in the clinic.

Dosage

Each case was started on two tablets four times a day. If they felt near normal after two days, the dose was reduced to two tablets three times a day. If the patient did not feel up to par, the dose of two tablets four times a day was continued another day or so before it was reduced. As soon as the patient felt normal on the two tablets three times a day dosage, it was reduced to one tablet four times a day. As soon as the patient felt normal on this dosage, it was cut one tablet daily, etc. until the medication was stopped. Thus the total drug dosage and the number of days treated varied with the individual case.

As each individual was seen inquiries were made

as to "How do you feel?", "How is your strength?" and "Are you following your high protein diet and getting an extra hour's rest?". After the first two to four days the drug dosage was based entirely upon how the patient felt: i.e. the dose was kept the same or reduced depending upon whether the individual felt near normal or not.

In my eight years' experience in treating mononucleosis with steroids, I have found this method of reducing drug dosage the most accurate, most satisfactory, easiest and the least expensive of all methods tried. Laboratory tests, especially the differential blood count, liver function tests and the heterophile test, are much slower in showing improvement in treatment than is the feeling of well being. Using laboratory tests as a guide to treatment not only prolongs the treatment time but increases its cost tremendously.

The results obtained in the 34 steroid treated cases were compared with the results obtained in two different sets of cases treated with cortisone as to the (1) average amount of drug used and (2) average number of days treated. These results are shown in the chart below.

A repeat differential blood count, heterophile and urinalysis were done on eight of the non-cortisone treated cases after treatment was completed. A drop in the heterophile dilution was noted in six and a rise in two. Urinalysis was normal in all and all were without symptoms. Two cases treated with Cortef developed hepatitis and slight jaundice which cleared rapidly while on treatment. One case had a thymol turbidity reading of 11.9 units at end of seven days treatment. This was not rechecked later because of the cost to the student.

Conclusions

- 1. Cortisone is superior to other steroids in the treatment of mononucleosis because the symptoms are controlled in a shorter period of time and with less total drug dosage.
- 2. Repeat laboratory tests after the original diagnosis has been established are superfluous, do not change or aid in the treatment and only add to its cost.
- 3. No complications occurred in any of the cases treated that could be assessed to the drugs used.

*1. Chappel, M.R.—Infective Mononucleosis, Southwestern Medicine, Vol. 43, No. 6, June 1962.

Drug Used	Number of Cases	Average Total Dose	Average No. days Treated	Increase over Cortisone in			
				111 Cases	34 Cases		
				No. Tab.	Days Treat.	No. Tab.	Days Treat.
Medrol	9	56.22	15.22	24.04	4.9	11.22	4.52
Cortef	8	54.5	16.37	22.3	6.07	9.5	5.67
Alphadrol	9	52.0	19.88	19.8	9.68	7.0	9.18
Delta Cortef	8	63.0	20	30.8	9.7	18.0	9.3
Cortisone	111	32.2	10.3				
Cortisone	34	45	10.7				

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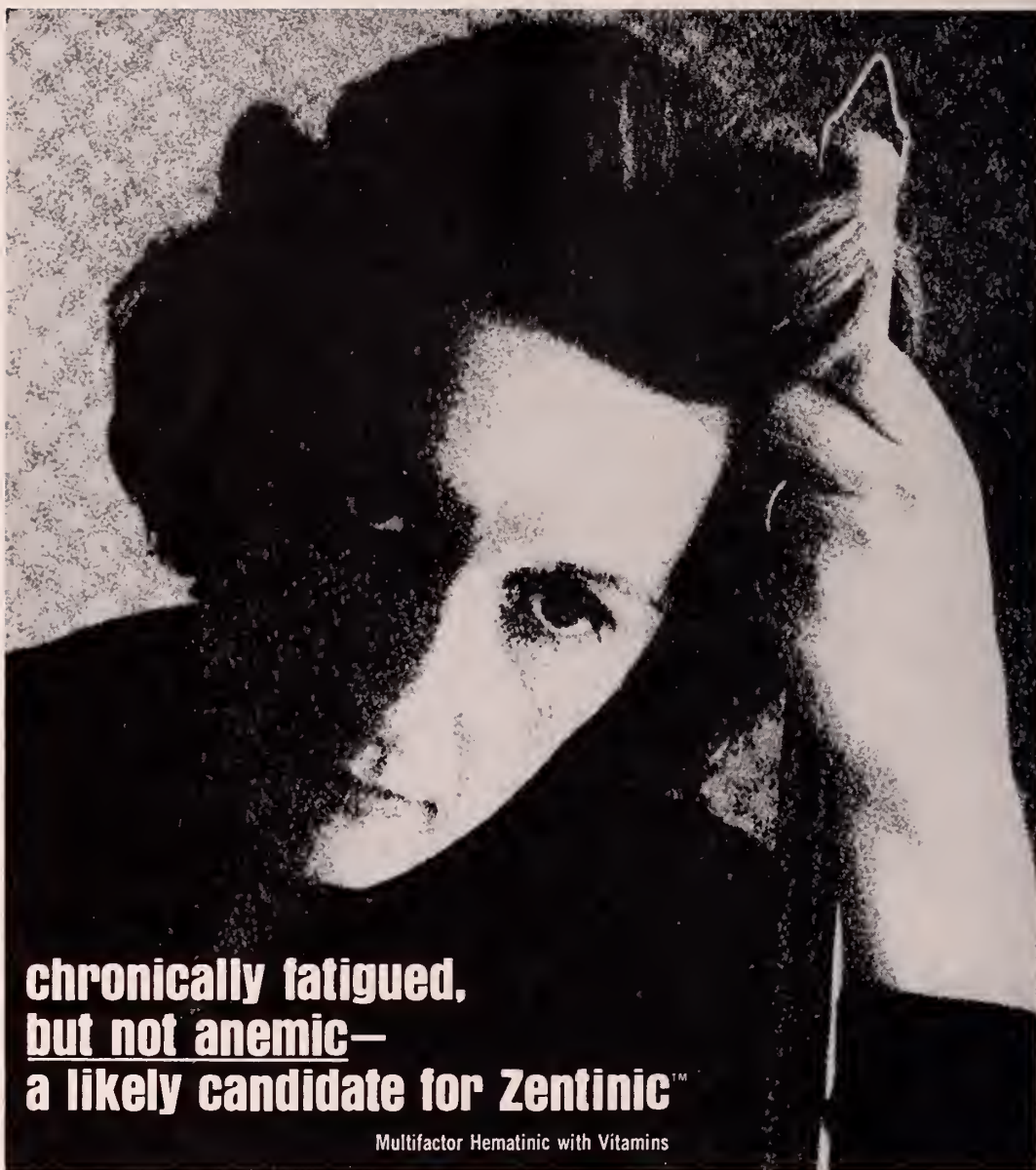
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1. Editorial: Postgrad. Med., 34:102, 1963. 2. Brise, H., and Hallberg, L.: Acta med. scandinav., 171(Supplement No. 376):23, 1962. 3. Sheehy, T. W.: Blood, 18:623, 1961.

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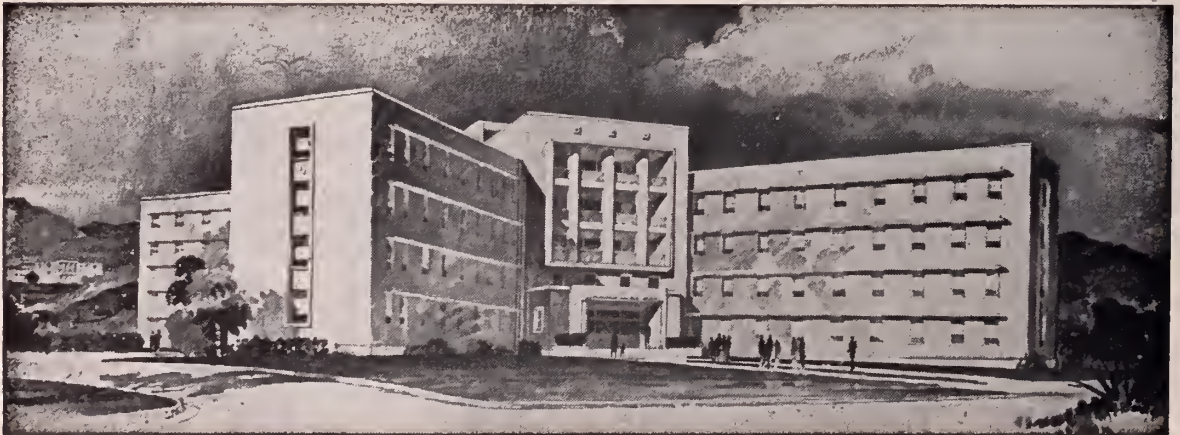
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*Cohen, et al: J.A.M.A., 165:225, 1957.

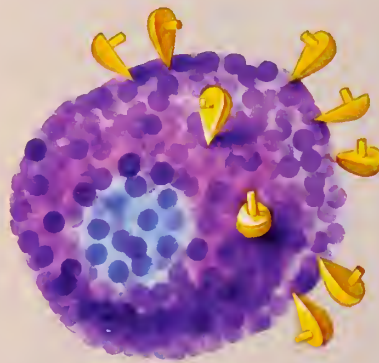
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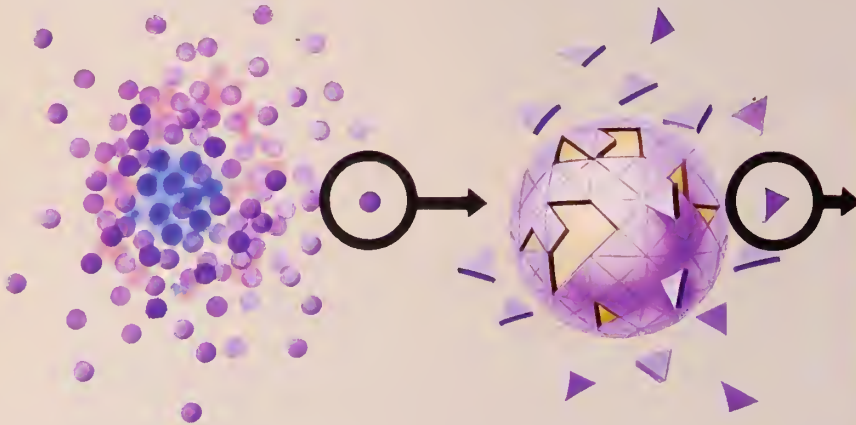
At first exposure to antigens (green) specific antibodies (yellow) are formed chiefly by plasma cells.



Circulating antibodies in the blood stream may become attached to mast cells in the tissues.



If the same *antigen* again enters the body and reacts with *antibodies* attached to cell walls, disturbances occur. The cell disrupts...



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*Schiller, I. W. and Lowell, F. C.: New England J. Med. 261:478, 1959.

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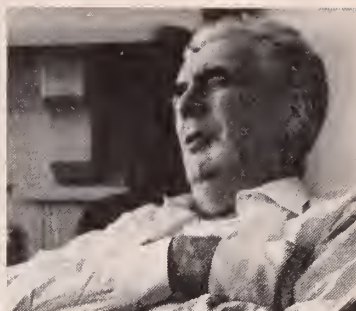
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The tense, nervous patient



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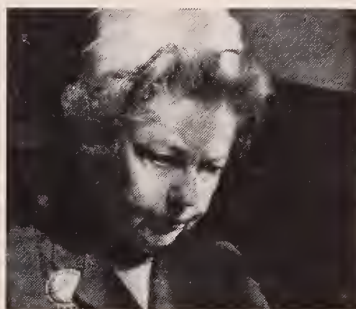
The surgical patient



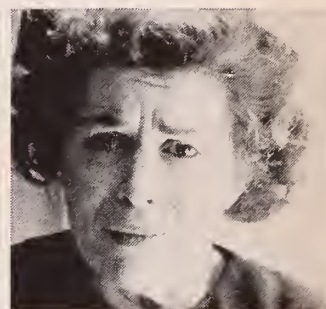
The girl with dermatosis



Tension headache



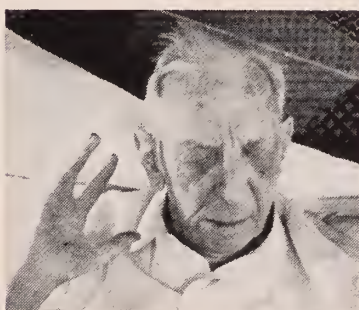
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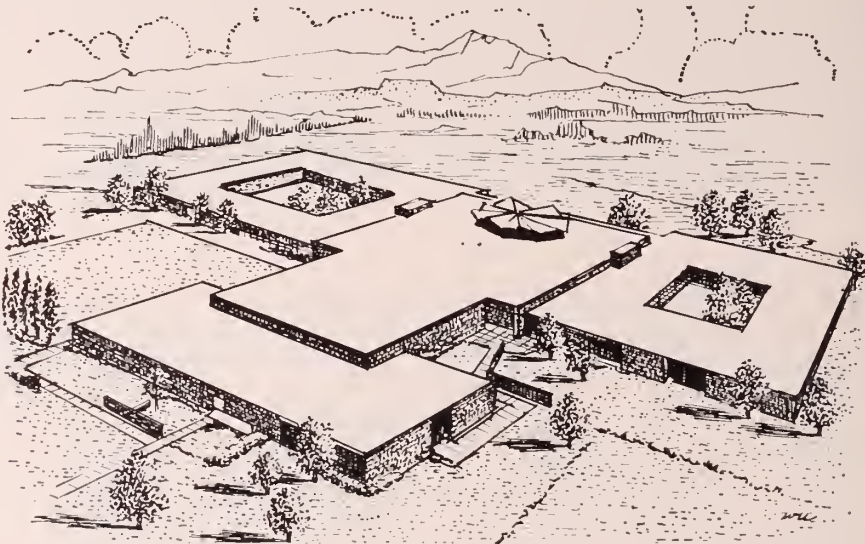
The G.I. patient



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1. Karnaky, K. J.: Tri-State M. J. 10:5, 1962.

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Papillary Cystadenoma Lymphomatosum

R. A. D. MORTON, JR., M. D., *El Paso*

Introduction

Papillary cystadenoma lymphomatosum of the major salivary glands constitutes an uncommon benign neoplastic process. Various series^{1,8,9} state that this specific tumor comprises anywhere from four to 14 percent of major salivary gland tumors. Recent experiences with this tumor led us to review the past and current literature relating to tumors of the major salivary glands and a review of the surgical anatomy of the parotid gland region. The purpose of this paper is to briefly discuss the history, the gross and microscopic examination of the tumor, its diagnosis and treatment with specific reference to utilization of the faciovenous plane and parotid gland surgery.

Hilderbrandt,⁵ in the late 1890's, was the first to describe this neoplasm. He considered this a variation of the branchiogenetic cyst and it was his suggestion that its derivation was from heterotopic entoderm. In 1929⁵ Warthins made the first American report describing two cases in a review of over 700 salivary gland tumors. It was his conclusion that the tumor represented displaced embryonic tissue from the eustachian tube and he further described epithelial cells within the tumor containing cilia. The tumor has, in this country, become commonly known as a Warthins Tumor. Various^{14,18} terms which have been proposed for papillary cystadenoma lymphomatosum are adenolymphoma, oncocytoma, Warthins Tumor and papillary cystadenoma with lymphoid supporting tissue.

The term oncocytoma¹⁷ has received poor support in this country but it was originally felt that the large oxyphilic granular cells known as oncocytes might play a primordial part in the development of this tumor. There has not, as of recently, been any proof that the neoplasm arises from these oncocytes. It has⁹ recently been reported in association with three cases of tuberculosis and two cases of a systemic lymphoma. There have been no fur-

ther reports to suggest that it is associated with any specific systemic disease in higher incidence than would otherwise be expected. It is now¹⁷ felt to be a neoplastic proliferation of parotid ducts, included in lymph nodes.

Clinically, the tumor presents as a soft, painless swelling usually in the area of the parotid gland in the portion of the superficial lobe. It is most commonly diagnosed as a benign mixed tumor of the parotid gland. On microscopic^{5,9} examination the essential elements of the neoplasm are an epithelial parenchyma and a lymphoid stroma. The parenchymatous tissue is composed of tubules and dilated spaces into the lumina of which project finger-like papillary processes giving the neoplasm its characteristic microscopic appearance. In contrast to the description by Warthins depicting cilia on the epithelial component recent investigators have described this as artefact. Characteristically, the epithelium is in two rows of cells with the inner row composed of columnar cells with a clearly delineatable oxyphilic granular cytoplasm and an outer layer of cuboidal or rounded cells. The inner cell layer nuclei are deeply stained and are arranged in an even fashion toward the luminal end. Within these tubular and cystic spaces are found secretory material which is moderately granular and stains acid with hematoxylin and eosin staining but it occasionally is colloid-like. The delicate, thin, basement membrane separates the epithelium from the lymphoid stroma which supports the parenchyma and forms the core of these previously described papillary projections.

Clinical Course

A patient with a Warthins Tumor may present with a history of having noticed a slow progressive growth in or adjacent to either the parotid or submaxillary gland for a period of several years. There is usually no evidence of facial weakness or paralysis in cases involving the parotid gland. The

disease^{1,5,8,9,17,18} affects men in a ratio of five to one over women. The average age group in one large series was 55.6 years. The youngest known case was at two and one half years. The longest known case had had parotid gland area swelling for 30 years prior to seeking medical attention for this condition. Ward¹⁸ and Hendrick state that as of 1950 no cases in the minor salivary glands had been reported, but Hendrick¹⁰ recently reports a case in the minor salivary glands of the hard palate which was treated by local excision with no evidence of recurrence in 11 years. These tumors have been described as being bilateral and in a series⁸ of 766 parotid tumors at Memorial Hospital, 14 per cent were described as being bilateral. They have also been described in more than one member of the family.

Diagnosis

The statical likelihood of making a preoperative diagnosis of papillary cystadenoma lymphomatosum is unlikely. The gross appearance of this tumor at surgery has been described⁹ by some as being typical but most authorities feel that the procedure of choice is a superficial parotidectomy if the tumor is located in the superficial lobe or a total parotidectomy if it has arisen more deeply. The facial nerve of course need not be sacrificed. A frozen section at the operating table will give a definite diagnosis to the surgeon. Sialography^{5,7} is felt by the author to be of value in ruling out this in contrast to other parotid tumors. The sialography will show that the tumor under suspicion is extra capsular and the sialogram will reveal displacement of the normal architecture of the glandular network of the parotid or submaxillary glands. If the patient has had an intracapsular disease such as Mikulicz's then the sialogram will reveal dilatation of the ductal system of either the submaxillary or parotid gland. In essence, it must be reiterated that the diagnosis of this tumor rests with the pathologist and not with the surgeon. Any attempt to alter parotid surgery technique on the basis of a gross diagnosis of papillary cystadenoma lymphomatosum will result in more wrongs than rights.

Treatment

Once the diagnosis of a submaxillary or parotid gland tumor has been made and the diagnosis specifically of a papillary cystadenoma lymphomatosum has been made the currently acceptable meth-



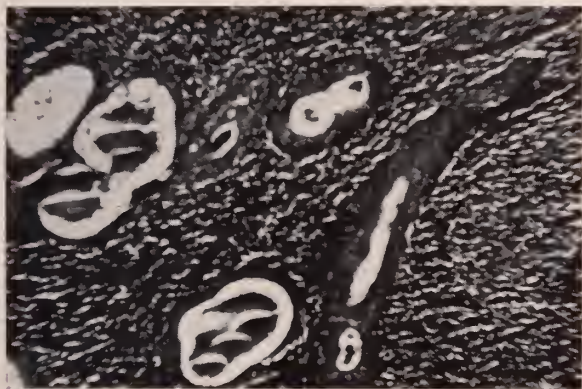
Sialogram showing normal ductal network with displacement of inferior portion of the ductal system.

od of treatment is surgical excision. In a recent report two women, ages¹⁰ 24 and 36, had a Warthins Tumor of the parotid glands that were treated by radio-therapy with marked reduction of the tumor and a cessation of progression of tumor growth with followup at nine and seven years respectively. The author does not, however, mention the total tumor dose given to either of the two cases. Other authorities, including Ward^{5,8,14,18} and Hendrick, Daly, Frazzel, Martin and Helsper feel that surgical excision is the treatment of choice.

Recurrence rate is low. In most^{5,9} series it is less than one per cent and in these most authors have attributed recurrence to opening of the tumor and surgical spillage at the time of the initial surgical procedure.

The most dreaded complication of parotid gland therapy is the severance of branches of the facial nerve. The historical review in 1956 on the surgical anatomy of the facial nerve and parotid gland⁶ by Davis, Hanson, Buddinger and Kurth should be reviewed prior to consideration for surgical treatment of parotid gland tumors. The introduction¹⁶ in 1957 by Patey and Ranger of the utilization of

faciovenous plane in the parotid gland was a significant contribution to parotid gland and facial nerve surgery. Utilizing the superficial temporal vein as a landmark in an aid to identifying the facial nerve aids the surgeon in two specific areas in doing parotid gland surgery. Running from the upper to the lower pole of the parotid inside the gland are large veins which beginning with the superficial temporal region terminate inferiorly in an anterior vein. This joins the common facial in a posterior which constitutes the main element of the external jugular vein. Inside the gland these veins make up a plexus which lies immediately deep to the facial nerve and its branches. The vein is identifiable superficially at the superior limits of the parotid gland and as it courses through the parotid gland becomes deeper and deeper until the facial nerve approximately two thirds of the way down from the top of the gland is identified. Utilizing the maneuver of identifying the vein superiorly and following it inferiorly has other advantages. Usually the external jugular vein is divided and turned superiorly in the course of elevating the flaps in the early stages of surgery. This



Microscopic section of papillary cystadenoma lymphomatosum showing typical architectural characteristics. Both the epithelial layer and lymphoid stroma are clearly seen.

usually leads to engorgement of the veins cephalad to the point of ligation with increased venous congestion and oozing during the splitting of the parotid gland. This is eliminated if the faciovenous plane is utilized and the tributaries to the external jugular vein are left undivided.

Patey and Ranger have suggested, as a result of a surgical anatomical dissection of over twenty-five parotid gland molds a division of the parotid gland

as follows: The division is based on the position of the parotid gland to the facial nerve. That portion of the gland lateral to the facial nerve is called the superficial parotid. This portion possesses two separate divisions. One is the suprafacial (glenoid) extension. Second portion is the infrafacial (cervical) extension. The portion the parotid gland medial or deep to the facial nerve is called subfacial parotid and this division is likewise divided into a suprafacial (glenoid) extension and infrafacial extension. We have found as a matter of practical advantage use of this classification in describing accurately partial parotidectomies which have otherwise been difficult to do.

We have found¹³ that the utilization of a Y shaped incision is not always necessary. We have used a curvilinear incision beginning superiorly just anterior to the ear in a natural skin fold with downward extension in natural creases to the level of the hyoid bone. The dissection² of the anterior flap just to the anterior edge of the parotid gland at the beginning of surgery is an excellent idea to aid in the preservation of facial nerves until the main trunk can be identified by following the superficial temporal vein.

In the event that the main trunk or one of the terminal branches of the facial nerve is severed then immediate repair is strongly recommended. In spite of the report by Martin¹⁴ and Helsper of spontaneous recovery of the facial musculature movement following the removal of part or portions of the facial nerve in parotid gland surgery of 36 per cent, we feel that immediate reconstruction and suturing of the nerve is advisable at the time of surgery. The use of small polyethylene tubing as a support for the two nerve fragments, as suggested⁴ by Conley, has been found to be a very useful technique.

Case Report

Mr. F. M., a 55 year old male engineer, presented with a complaint of tinnitus in the left ear. Complete physical examination revealed no abnormalities with the exception of three by four cm. mass in the inferior aspect of the left parotid region. The patient had not noticed the mass, had had no pain and presented no evidence of facial paralysis. Audiometric examination led to the conclusion that the cause for the tinnitus was acoustic trauma with a marked loss of both nerve and air conduction in the higher frequencies. A sialogram

was performed on the patient and revealed normal ducts within the left parotid gland but displacement of the inferior aspect of the glandular network. Under general endotracheal anesthesia, utilizing the previously described incision, the superficial portion of the left parotid gland was removed. Histologic examination revealed a large papillary cystadenoma lymphomatosum. The immediate post-operative course was uneventful with no evidence of facial paralysis and the patient has presented no evidence of recurrence seven months after surgery.

Conclusions

Papillary cystadenoma lymphomatosum constitutes approximately five per cent of major salivary gland tumors. It is a benign neoplastic process, slow growing, painless, and composed of epithelial and lymphoid elements. It is diagnosed by the pathologist, microscopically, and the treatment of choice is surgical excision. The utilization of the facio-venous plane in parotid gland and facial nerve surgery is felt to be an improved surgical anatomical consideration.

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TMA Meets in Houston April 23-26

The Texas Medical Association will hold its 97th Annual Session in Houston, April 23-26, 1964. The largest medical meeting held annually in the Southwest, the TMA session will feature approximately 250 medical authorities as program participants. This numbers includes 32 out-of-state guest speakers, 60 special speakers, and some 150 TMA-member speakers.

Scheduled are 14 refresher courses, 11 scientific sections, two general sessions, and 10 informal round-table discussions called "Curbstone Consultations". Twenty-seven related and specialty groups will hold scientific programs in conjunction with the TMA meeting, including a seminar held by the Texas Academy of General Practice. Special symposiums are planned on alcoholism, cerebral palsy, and disaster medical care.

For the third consecutive year, closed-circuit

television will be utilized to present medical topics. One of these TV presentations will be on the medical aspects of manned space flight. Simulated flight preparation and monitoring from a medical viewpoint will be demonstrated by physicians from the NASA Manned Space Flight Center via "Eidophor", Ciba Pharmaceutical Company's system of large screen, color television.

Co-headquarters for the meeting will be the Shamrock-Hilton and the Towers. All 200 scientific and technical exhibits will be housed in the Shamrock-Hilton's "Hall of Exhibits".

This year marks the first time a TMA Session has been staged on the new Thursday through Sunday schedule. TMA's scientific program will be given on Friday and Saturday, with related and specialty groups meeting over all four days.

Treatment Of The Alcoholic*

RONALD J. CATANZARO, M. D.**

Ever since I became particularly interested in the great public health problem of alcoholism, I have become increasingly convinced of one outstanding conclusion. **We are on the threshold of another great advance in medicine, i. e., the widespread successful treatment of the alcoholic by the local physician.** I am convinced that the advent of this phenomena is of equal importance to the medical benefit of mankind as was the advent of the family physician's learning to successfully control the diabetic and the hypertensive. I believe in the next five to 10 years every city of moderate or large size will have a well staffed alcoholism treatment center and will, in addition, have active treatment programs for alcoholics as part of the routine services offered by the local general hospital.

What evidence can I produce to support these seemingly radical statements? Firstly, one must be struck by the fact that most pertinent studies indicate that three per cent of the population of the United States are alcoholics.¹ Every family that numbers 33 can statistically count one alcoholic as a member. It is apparent then that any health problem which involves five million Americans must be considered one of our most urgent public health problems.

Secondly, medical knowledge has advanced to the point that the alcoholic can be treated successfully. Alcoholic treatment and research centers have sprung up in many large cities all over the United States. These centers teach physicians, both those still in training and those in private practice, the most advanced concepts of treatment of the alcoholic. Many of the centers report 25 to 50 per cent of their patients achieve continued sobriety and social recovery following treatment. Follow-up periods range from one to five years.² To summarize, then, one must say not only that the need for treatment is mammoth, but also the ability to treat successfully is present. It is only a matter of time until these two facts come into active harmony.

When all physicians really accept the definition of alcoholism endorsed by the AMA's Committee on Alcoholism (I don't mean just giving lip service to the definition; I mean really accept it), namely that alcoholism is a chronic disease with remissions and exacerbations,³ the kind of course which is characteristic of many chronic diseases such as asthma, then I believe all physicians will find more success and more satisfaction from treating alcoholics.

Many physicians become discouraged treating the alcoholic because, just when he says "Doc, I've been sober three weeks now. I've decided I'm never going to drink again—I don't even like the taste of that stuff anymore!" he leaves the doctor's office, buys a bottle and goes on a three day bender. The physician says to himself at this point, "Sure, I know the American Medical Association officially recognizes alcoholism as a chronic disease. But let's be truthful, a large part of this so-called disease boils down to a basic defect in character, in morals, in will power!" Such condescending eponyms as Jelly Fish, spineless, inadequate, just an old drunk, etc., are indicative of the low esteem with which the alcoholic is eventually regarded by his physician.

My answer to you is this: How about the asthmatic who has a severe attack of asthma whenever a great emotional situation arises? Do you stop treating him because he's being uncooperative and not getting well like a good patient should? Doesn't much of his real trouble boil down to a character weakness, an inability to deal with life in a "normal way" whenever the going gets tough? And how about the ulcer patient who gets a pain in his stomach whenever his boss yells at him? Shouldn't he be dismissed as an uncooperative patient when his ulcer pain keeps recurring in spite of intense treatment?

Lots of doctors say, also, you can't trust an alcoholic, that they're chronic liars. Have you ever painstakingly tried to make a fat patient with hypertension reduce, tell him that if he loses 40 pounds he'll live 10 years longer? And after this

* Address delivered to the Annual Civilian Military Meeting in El Paso, Texas, on September 10, 1963.

** Presently Captain, U. S. Army Medical Corps, William Beaumont General Hospital, El Paso, Texas. Formerly Senior Psychiatrist, Alcoholism Treatment & Research Center, Malcolm Bliss Hospital, St. Louis, Missouri. Also President El Paso Council on Alcoholism.

three hundred pound hunk of manhood is on a 1,000 calorie diet for one month you succeed only in having him gain five more pounds? He looks you in the eye and swears he ate only what you told him, ate like the proverbial bird (forgetting a vulture is a bird, too). But you know that physiologically what he says is an absolute impossibility. If you want to treat a group of patients who are liars, treat fat people! Aren't they dishonest, morally weak, and weak willed? Shouldn't you toss them out of the office feeling absolved from any guilt of contributing to their premature death? They didn't follow your orders, so they deserve what they get. They're bad patients.

This is the plight that the alcoholic so often finds himself in today. But effective treatment methods have evolved and are in use widely today.

Three Cardinal Rules For Treating The Alcoholic

Following the three basic principles listed below is of great aid in successfully treating the alcoholic:

First Rule:

Make the correct diagnosis of alcoholism. One may say, "that's simple, I can tell a drunk when I see one." Most often though, the alcoholic does not enter the physician's office reeking of alcohol and complaining of drinking too much. **Quite often his chief complaint centers about a complication of his alcoholism, rather than the alcoholism itself.** The most common chief complaints which should alert the physician to the possibility of a co-existing alcoholic problem are complaints which fall into the following five categories:

1. Gastro-intestinal symptoms, i. e., peptic ulcer, gastritis, hematemesis, chronic indigestion, pancreatitis, cirrhosis and hemorrhoids.

2. Orthopedic symptoms, i. e., multiple fractures of mysterious origin, commonly of the ribs, arms and skull. This may be the result of one of the occupational hazards of drinking, falling from a high bar stool.

3. Neurologic symptoms often vague in character, i. e., blackout spells, amnesia, peripheral neuritis, chronic brain syndrome, Korsakoff's and Wernicke's Syndromes.

4. Psychiatric symptoms, i. e., nervousness, depression, loss of sexual drive, promiscuity, homosexuality, suicide attempt, insomnia.

5. Social maladjustment symptoms, i. e., in-

creased marital discord, failure to advance on the job, failure to get along with associates.

Both the patient and his spouse⁴ should be questioned about a possible drinking problem when the patient presents with one of the above symptoms. It is often unwise to investigate extensively the possibility of a drinking problem on the patient's first visit. Often it is more effective to wait until the second or third visit, after some tangible rapport has been established, before questioning the patient and his spouse in detail concerning a drinking problem.

Second Rule:

Insist on 100 per cent abstinence from alcohol. It is a mistake for the physician to focus initially on finding the "cause" for the patient's drinking with the idea in mind that once the cause is uncovered and understood, the drinking will stop. This out-moded concept of curing the alcoholic by finding the cause for his drinking is analogous to treating a patient with advanced gangrene of a leg due to thrombi of major vessels of the leg by removing the major thrombi and assuming the gangrene will disappear. It simply doesn't work!

It is safe to assume that the alcoholic has not only the initial "problem" which caused his alcoholism, be it sociologic, psychologic, physiologic, etc., but also has in addition, another problem, that of the alcoholism itself. To treat the alcoholic one must focus on the problems in the reverse order in which they developed, i. e., treat the alcoholism first and at a later date consider treating the "soil bed" of the alcoholism.⁵ The alcoholic must be initially encouraged to completely abstain from the use of alcohol. The more successful he is at this, the easier it will be for the patient and the physician to understand and treat the problem areas which may have given rise to the alcoholic problem initially. It is important for the physician to be prepared to accept the fact that the alcoholic rarely achieves continuing sobriety the first time his physician recommends it. Each time the patient resumes drinking the physician must explore with him the factors which led up to resumption of drinking and with this knowledge must help him work out alternative realistic solutions to "solving his problems" instead of resuming drinking to solve them.

Useful community resources in helping physician to treat his alcoholic patient successfully are Alcoholics Anonymous, the local Council on Alcoholism, special alcoholism clinics, local clergymen

who have shown a definite interest in helping alcoholics successfully.⁶ Also many physicians find starting the patient on Antabuse is helpful, but is by no means a cure-all.⁷

Third Rule:

Maintain an optimistic and constructive attitude. The idea of refusing to treat an alcoholic because doctors only treat sick people and not drunks is a cruel and unrealistic approach. Treatment of the alcoholic can be a very rewarding endeavor for the physician and the patient.

Description of An Inpatient Alcoholic Treatment Program

Although many physicians may wish to set up a treatment facility for alcoholics in their community, they may be unfamiliar with the operational scheme of an organized alcoholic treatment program. A brief description of the alcoholic treatment program as it exists at William Beaumont General Hospital* is presented below to be used as a possible guide line in setting up such a facility. The treatment program is conducted on the general psychiatric section of the hospital. Treatment is divided into two phases, (1) treatment of acute intoxication and withdrawal from alcohol, and (2) treatment of the chronic alcoholic problem thereafter. Patients requiring vigorous treatment of their acute alcoholism are admitted to the psychiatric wards of the hospital. Patients who have no severe acute alcoholic problems are treated on an outpatient basis. The alcoholic who is treated from the start as an outpatient is blended into the inpatient program as much as his daily routine will allow.

Salient features of the inpatient treatment of the acute phase of alcoholism include multi-vitamins with addition of large amounts of Thiamine HCL given both orally and parenterally for the first four days, and then oral multi-vitamins daily for four months thereafter. Fluids are forced orally from the beginning of treatment and intravenous fluids are rarely necessary. A normal diet is given with antacids after each meal for the first four days. After acute drunkenness wears off an initial dose of 100 mgs. chlordiazepoxide is given intramuscularly, followed by 25 mgs. of the same drug orally four times a day. In addition an order is given for 50 mgs. chlordiazepoxide intramuscularly every six hours as needed for marked agitation. No anti-

convulsants are routinely necessary as chlordiazepoxide has an anticonvulsant as well as a tranquilizing action.

As soon as the hospitalized patient is physically able he is started on the chronic treatment program, the main features of which are as follows:

1. Group therapy is conducted by the ward physician twice weekly in which the members are all alcoholics or probable alcoholics.
2. An optimistic and constructive attitude is maintained by the medical and nursing staff.
3. Three meetings of Alcoholics Anonymous are held per week.
4. Reading of specially selected literature on alcoholism, which is readily available on the ward, is encouraged.
5. A two-week hospital stay is the rule.
6. Milieu therapy including physical and occupational therapy is encouraged.
7. Individual psychotherapy twice weekly for 20 minute sessions is given each patient with the goal in mind of helping the patient to assess his own progress and helping him plan for follow-up care after discharge.
8. The main mode of follow-up therapy is continued attendance at alcoholic group therapy and Alcoholics Anonymous with occasional individual visits with the physician.

In summary, it must be reiterated that the problem of alcoholism in the United States is gigantic; successful treatment methods are available; and a treatment program similar to the one outlined in the latter part of this paper can be readily instituted in any general hospital and can be successfully operated by one or many physicians who are interested in the problem of alcoholism.

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*A Class II Army Hospital in El Paso, Texas.

In Memoriam

Dr. Jim Camp

By E. W. SCHMIDT, M. D., *Pecos, Texas*

On January 22, 1964, death came quietly to Dr. Jim Camp of Pecos, Texas, thus ending a magnificent career in Texas Medicine. A native of Tennessee and a graduate of the University of Tennessee College of Medicine in the year 1900, Dr. Jim followed the advice of Horace Greeley and came west. He settled in Pecos, a small cross-roads cattle town on the T & P Railroad, where for 63 years he devotedly practiced his profession.

Dr. Jim's practice spanned two eras of medicine: from the horse and buggy days to the age of jet propulsion; from calomel and Salvarsan to modern antibiotics and synthetic drugs; and from kitchen table surgery to the wonders of intricate procedures involving organ transplants and artificial heart-lung machines. Throughout his long career, he kept mentally alert to all new developments in medicine for he was an avid reader of a wide range of medical literature. He was never the last one to try new medications, nor to lay aside the old. During the early days of his practice he used a horse and buggy to make long house calls, and at times caught rides on the T & P trains going east and west through Pecos. He performed the first appendectomy in the Trans-Pecos region, and countless thousands of patients felt the healing touch of his competent hands or heard the calm reassurance of his voice. The great majority of his patients developed strong bonds of friendship with him, and rewarded his efforts with an intense loyalty. In his work he was calm and deliberate,

and his devotion to his work was absolute. He denied himself many material pleasures to minister to the large practice he had. Medicine was his hobby as well as his profession.

However, there was time in his busy schedule to contribute many hours to community improvement. The modern Pecos School system was begun while he served as a member of the school board. The Masonic order has bestowed numerous honors upon him for his work in that body. Among the Charter members of the Pecos Rotary Club, he was later made an honorary member of the Pecos club. The First Christian Church of Pecos was the recipient of much of his time and effort, and his attendance was regular. The beginning of the Reeves, Ward, Winkler, Loving, Culbertson, Hudspeth County Medical Society occurred as a result of Dr. Jim's efforts to bring organized medicine to West Texas, and he served as President of the group. In 1950 he was named "Doctor of the Year" by the Texas Medical Association. He was past 70 years of age when he joined the Texas Academy of General Practice, and attended numerous post-graduate seminars.

By all the criteria of evaluating a man's worth to his community and to his profession, Dr. Jim Camp was a great man, and, in words of Marc Anthony, "he was gentle, and the elements so mixed in him that nature might stand up and say to all the world — this was a man".

Coming Meetings

New Mexico Medical Society, 82nd Annual Meeting, Business Sessions Ramada Inn, Clinical Program La Caverna Hotel, Carlsbad, April 13-17, 1964.

Texas Medical Association, 97th Annual Meeting, Houston, April 23-26, 1964.

Nevada's Sixth Annual Cancer Seminar, Sahara Hotel, Las Vegas, Nev., April 27-29, 1964.

New Mexico Chapter, American Academy of

General Practice, Summer Clinic, Ruidoso, N. M., July 20-23, 1964.

Western Association of Railway Surgeons, Annual Meeting, Sun Valley, Idaho, Oct. 7-11, 1964.

Southwestern Medical Association, 46th Annual Meeting, Flamingo Hotel, Las Vegas, Nev., Oct. 22-24, 1964.

Southwest Obstetrical and Gynecological Society, Annual Meeting, El Paso, Oct. 29-31, 1964.

Recruitment and Cooperative Education Plan for High-Ability Premedical Students

FRANK I. GARY*, *El Paso*

Preface

Many members of the medical profession feel that too few of our talented high school graduates have chosen the medical sciences as a career. In order to interest more of our gifted young people in medicine, a Recruitment and Cooperative Education Plan for High-Ability Premedical Students was submitted in the summer of 1963 to the Board of Trustees of the Lovelace Foundation for Medical Education and Research.

After a series of explanatory conferences with W. Randolph Lovelace II, M. D., and other members of the Foundation, the proposal was submitted to Dr. James Shannon, Director of the National Institutes of Health, and to the Director of the National Science Foundation, to explore the possibility of securing a grant to organize a pilot program sponsored and administered by the Lovelace Foundation.

Dr. Shannon endorsed the program and stated, "There is no doubt but that you have concentrated upon a problem of great significance to medical education and to the country generally. We regret to inform you, however, that the National Institutes of Health has no statutory authority to undertake the sort of program which you have in mind. We hope that you will find it possible to secure support for your proposal . . ."

Mr. Bowen C. Dees, Associate Director of the National Science Foundation, stated, "The Foundation can only offer hearty encouragement to an enterprise so eminently worthy." He suggested that some modification of the plan might be supportable under the Guidance and Counseling Institutes Program of the U. S. Office of Education.

In February 1964, the proposal was discussed

with Dr. Edward Teller of the University of California, and with Hubertus Strughold, M. D., Chief Scientist, Brooks Air Force Base. Each of these two scientists approved the basic plan, and Dr. Teller indicated that he would personally support a cooperative education program if it were not limited to students enrolled in premedical courses. Copies of the original proposal have been sent to Dr. Teller and Dr. Strughold for study and analysis.

The Recruitment and Cooperative Education Plan for High Ability Premedical Students will be submitted to the American Medical Association Research Foundation, together with a request for a grant to finance a study of current U. S. Recruitment and Undergraduate Premedical Assistance programs. A revision of the Recruitment and Cooperative Education Plan for High Ability Students, not restricted to medical sciences, will be submitted to the U. S. Office of Education, as suggested by the National Science Foundation. Facets of the study are to include a survey of institutions and colleges that may be willing to sponsor science seminars, summer institutes, independent study and research, and cooperative education programs.

The Science Seminar and the Summer Institute, which are discussed in this article, are based on the El Paso Science Seminar and the El Paso Summer Institute, both sponsored jointly by the El Paso Public Schools and the El Paso Downtown Rotary Club. These activities were organized in 1958 and have received two American School Board, National Education Association, and Better Homes and Gardens awards. They were also selected by the U. S. Office of Education for a two-year study of out-of-school practices, and have received other national recognition and publicity.

* The author is (1) Coordinator of Seminars and Institutes for the El Paso Public Schools and (2) Education Consultant to The Lovelace Foundation for Medical Education and Research.

Proposed Plan

Introduction

Most colleges and universities that offer pre-medical courses sponsor some type of employment for students who need financial assistance. In many instances this employment is not related to the student's career. A study of current practices indicates that no organized national plan is in existence which enables a premedical undergraduate student to secure part-time employment in medically related or laboratory work.

It is proposed that colleges or universities that offer a premedical program and local medical colleges or medical research organizations jointly sponsor: (1) a program to recruit talented high school students, and (2) to provide part-time career related employment for needy college students during their premedical education.

For the last several years the National Science Foundation has sponsored Summer Institutes for Academically Talented High School Students. These institutes offer a variety of subjects, including microbiology, biochemistry, biomedical sciences, and biophysics. However, after a short, intensive summer program students return to their high schools or enroll in college. It appears that NSF and privately supported summer institute medically-related courses have not been utilized sufficiently in a national effort to recruit the best high school students for careers in the medical sciences.

Each year the National Science Foundation considers proposals from universities, colleges, and nonprofit research institutions for programs in mathematical, physical, biological, medical, and engineering sciences as well as other disciplines. In 1963 summer opportunities to obtain intensive experience in science and mathematics were provided for approximately 7300 high-ability secondary students by 164 colleges, universities, and research organizations with the support of the National Science Foundation.

Full-time summer training was offered to only 361 of these students by 15 institutions in physiology, microbiology, biomedical sciences, and biochemistry. Six other institutions offered courses to 206 students in physiology, microbiology, biochemistry, biophysics, biophysical chemistry, and medical sciences in conjunction with mathematics, physics, or other standard school subjects.

An examination of the NSF summer opportunities that are offered to talented students indicates that this program could be expanded in some areas of the United States.

The 1963 National Merit Scholarship Corporation's annual report indicates that 1223 Merit Scholars and Semifinalists listed medicine as their career choice. Many of these high-ability students were unable to secure admission to a NSF Summer Science Training Program, and no organized national cooperative education plan was in existence to help them finance their premedical training.

Recruitment

The recruitment program might include two distinct activities: a "medically-slanted" science seminar for senior high school students, and National Science Foundation and locally supported Summer Institutes for high-ability secondary school students.

Science Seminar

An "after-school" science seminar for academically talented students could be included in the program to recruit local high school students. This seminar should include lectures and demonstrations related to the most significant developments in every scientific field, but the major emphasis could be on medical subjects.

It is recommended that the program include topics from microbiology, bacteriology, biochemistry, and biophysics, so that the students may secure an understanding of the relationship and applications of their regular school science courses to modern medicine.

The subjects presented to students should be chosen by a seminar curriculum committee composed of representatives of the local college, the medical school, the public schools, the parochial schools, local scientists from industry, and the local medical society.

Summer Institute

A Summer Institute for High-Ability High School Students should be considered. In the summer of 1963, the National Science Foundation sponsored 167 programs for high school students. In addition, 21 degree granting institutions offered courses in which both teachers and pupils were accepted.

The summer institute program should provide supervised laboratory research experiences for all participants. The National Science Foundation also

recommends that in some instances "students with a strong background in science can be assigned to a single problem for the duration of the program. It is believed that meaningful program in research should run at least eight weeks."

The summer institute courses may provide training for commuting and/or boarding students. The National Science Foundation grants include the salary of the director, the cost of secretarial work, instruction, publications, and financial assistance is granted for about half of the students for room and board and transportation. The sponsoring institution receives a grant of 15% of the overall cost for overhead.

A "medically slanted" summer institute would, in some instances, supply the sponsoring institution with a limited number of capable part-time research assistants during the regular school year.

Undergraduate Program

It is likely that many of the science seminar and summer institute students will enroll in premedical courses. However, it is recommended that a program be established that will offer exceptional educational opportunities to National Merit Scholars and the 45,000 Semifinalists and Commended students who have indicated scientific research or medicine as their career choices.

The National Merit Scholarship Corporation does publish the home addresses of Semifinalists. At the present time one midwestern university obtains detailed data on "Commended" students interested in the field of engineering.

Many students who are interested in a medical career may need financial assistance or may be interested in participating in scientific research that is not normally included in the regular college curriculum.

Therefore, it is recommended that the two activities described below be considered for a program with the thought that eventually other institutions may adopt similar programs.

Cooperative Premedical Education Program

Many colleges and military installations have organized successful cooperative education plans which assist the sponsoring organization in securing a constant supply of trained technicians and scientists.

The Government has an extensive cooperative plan in operation at the White Sands Missile Range and at other military bases. Students are

selected on the basis of competitive tests and spend approximately six months at a military installation and six months at college. Students who are accepted usually work and study for five and one-half years before they receive their bachelor's degree.

This is too long for a premedical student.

A Unique and Successful Cooperative Education Plan

The New Mexico Institute of Mining and Technology at Socorro, New Mexico, is operating one of the most unusual cooperative plans in the nation. Students who are accepted report to the Institute a week after graduation from high school and are enrolled in two summer morning classes and work in research laboratories five afternoons a week (20 hours). During the winter and spring semesters these students work only four afternoons a week (16 hours) and have their science laboratory classes on Friday afternoons.

Thus, these cooperative students are able to complete their entire college education in four academic years and are graduated at the same time as the regular students.

Students in the cooperative plan generally are able to earn enough money to pay for all of their expenses with the exception of out-of-state tuition.

Cooperative graduates are *usually* offered a high starting salary because of their working and laboratory experiences. The New Mexico Institute of Mining and Technology authorities report that cooperative students usually do better work in graduate courses than other students.

It is contemplated that many colleges offering premedical courses may wish to sponsor National Merit Scholars, Semifinalists, and Commended students who cannot finance their education. No national "medically-slanted" cooperative education program seems to have been established.

Students enrolled under this plan could enroll in two summer session courses in the morning and work in hospitals or in medical laboratories in the afternoons.

During the academic year, these students could be employed on a part-time basis so that they could complete their undergraduate work in four years.

An organized cooperative education plan would provide local laboratories and hospitals with a reliable source of qualified assistants.

Undergraduate Research Participation and Independent Study

The National Science Foundation (NSF) supports a number of activities designed to provide special opportunities for the scholarly development of outstanding undergraduates. Proposals to the NSF may request support for a program of either Undergraduate Research Participation or Undergraduate Independent Study or both. "Primary emphasis, in any program, must be placed on the individual student working things out for himself. Guidance by the supervising faculty member will be needed from time to time, but should not be of such a nature as to make the student's role a dependent one. Briefly, it is the Foundation's objective to assist colleges and universities in providing gifted undergraduates with an opportunity to obtain relatively individualized experiences in science in addition to those normally available through courses or other aspects of the usual academic regimen. It is not the intention of the Foundation to support through this activity either undergraduate scholarships or established courses or student participation in such courses."

It is the intent of this program that participation during the summer be on a full-time basis. The summer stipend for undergraduates is limited to \$60 weekly per participant. The summer programs must run from eight to 10 weeks.

Academic year participants are expected to spend eight to 10 hours a week in research and a stipend of \$200 may be provided.

The Foundation also will provide a "Cost of Program Allowance" to reimburse the sponsoring institution for direct and indirect costs. The "Allowance" schedule provides:

- 1. An allowance up to \$80 per week for each participant may be requested, with a maximum of \$800 per participant for a ten-week program.
- 2. For each academic year participant, an allowance of up to \$500 may be requested for the academic year.

These allowances were established to give participating institutions a greater measure of freedom in the operation of Undergraduate Science Education Programs.

Conclusions

In 1963 over 596,000 high school juniors competed in the National Merit Scholarship testing program. Of this number 1,314 were declared Scholars, 11,128 Semifinalists, and about 32,600 other students were designated as "Commended" scholars.

The career choices of these gifted young people are as follows (some areas have been omitted):

	Scholars	Semifinalists
Scientific Research	359	2,273
Teaching	338	2,057
Engineering	199	1,280
Medical Sciences	123	1,100

Note: No data was available at this writing regarding Commended Scholars.

It is suggested that consideration be given to the possibility of establishing an organized service which will assist colleges and research institutions in a national effort to recruit and develop cooperative education programs for students interested in a medical career.

This service could include a consultant service and also supply colleges with data regarding programs that would meet the needs of students and the sponsoring institution. In addition, local medical societies, public school systems, colleges, universities, and research organizations could be furnished information to enable them to establish science seminars and summer training programs for academically talented high school students financed with local funds.

It is not contemplated that all recruitment and cooperative education phases outlined in this proposal would be adopted by any one college, university, or research institution.

Since the National Science Foundation does not provide funds for a cooperative premedical education program, the Department of Health, Education, and Welfare, or a national group of medical institutions and individuals may wish to establish an assistance program where the local college needs financial help in getting a program organized. However, it is not proposed that governmental agencies or educational foundations would finance all of these programs.

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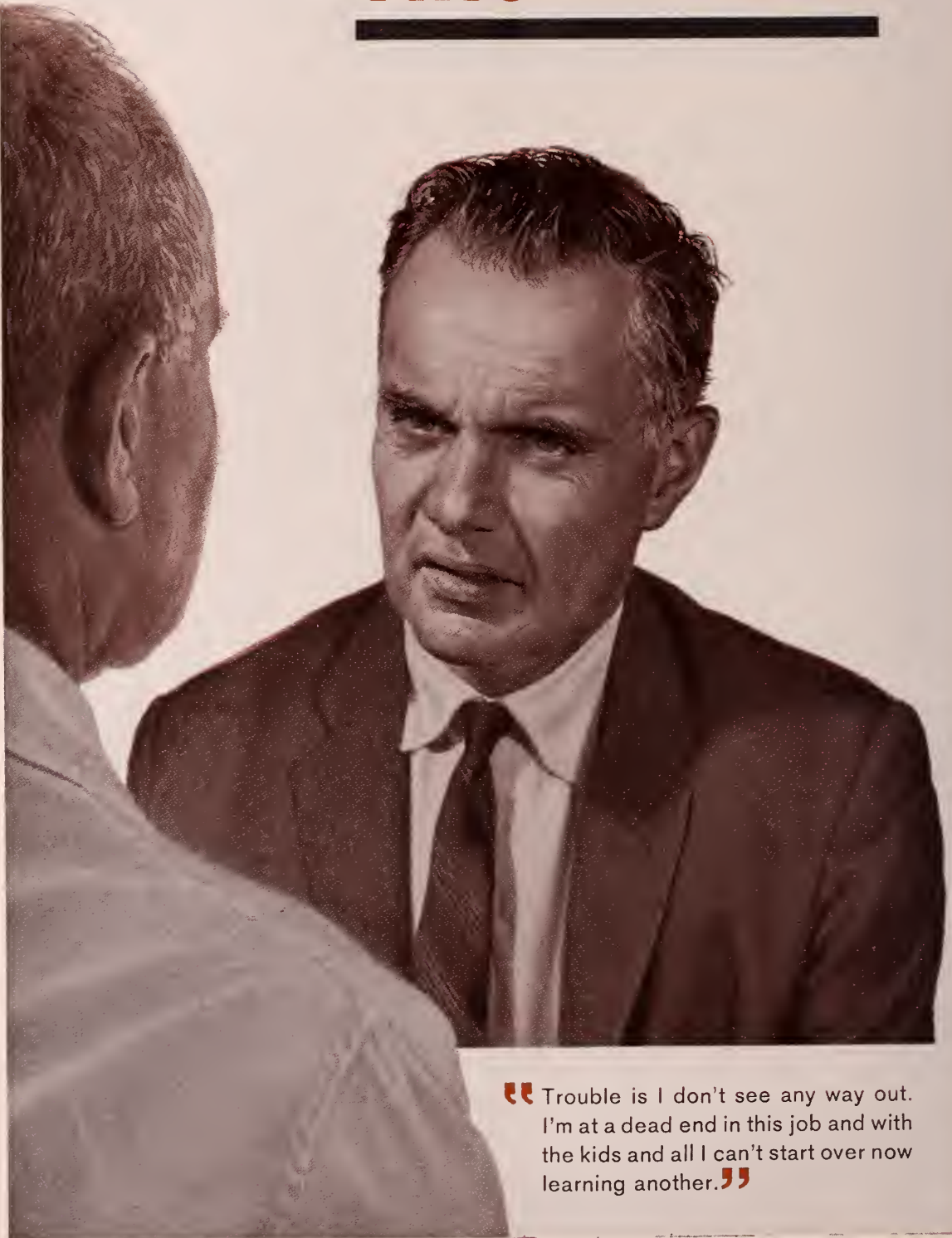
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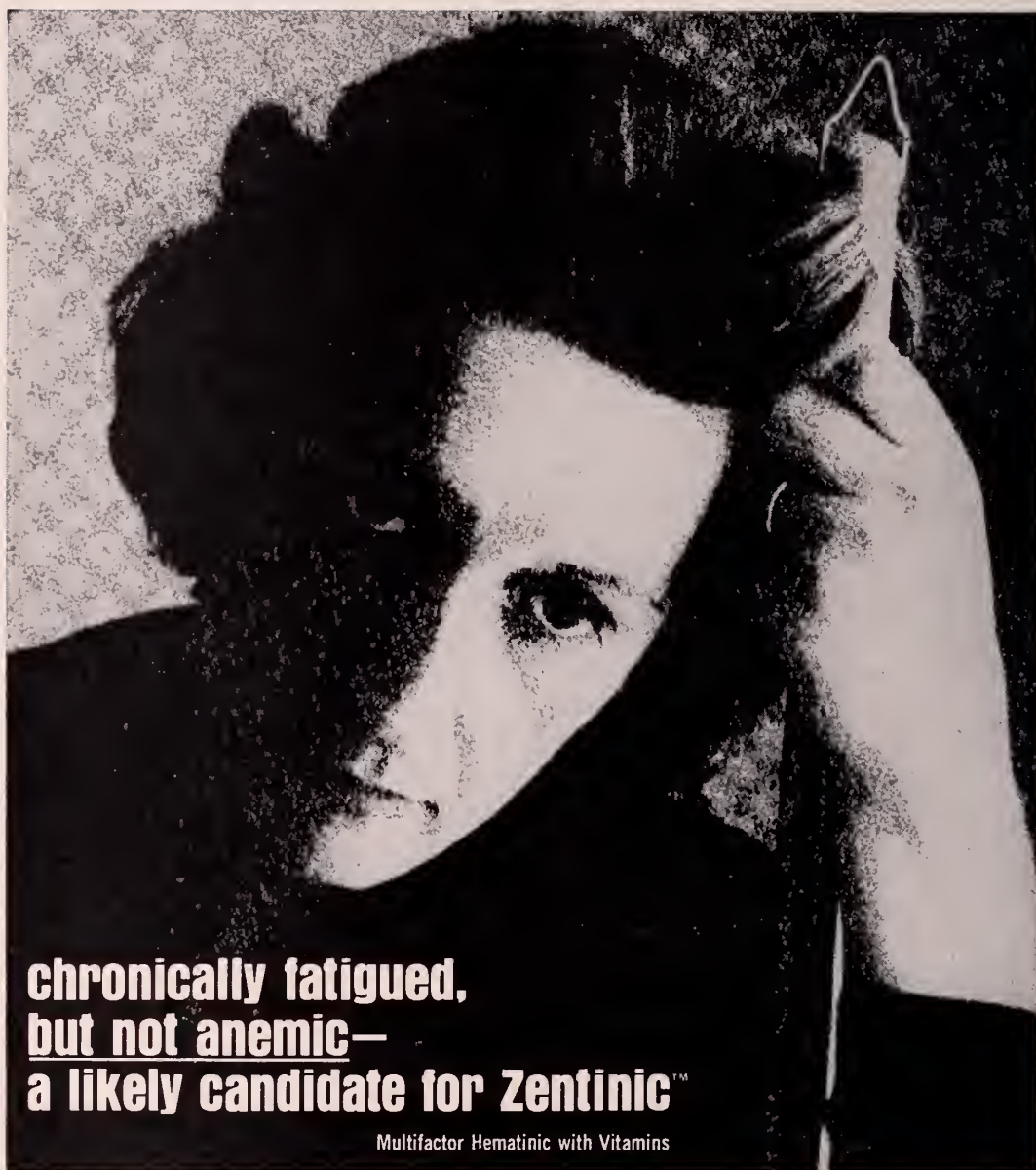
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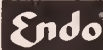
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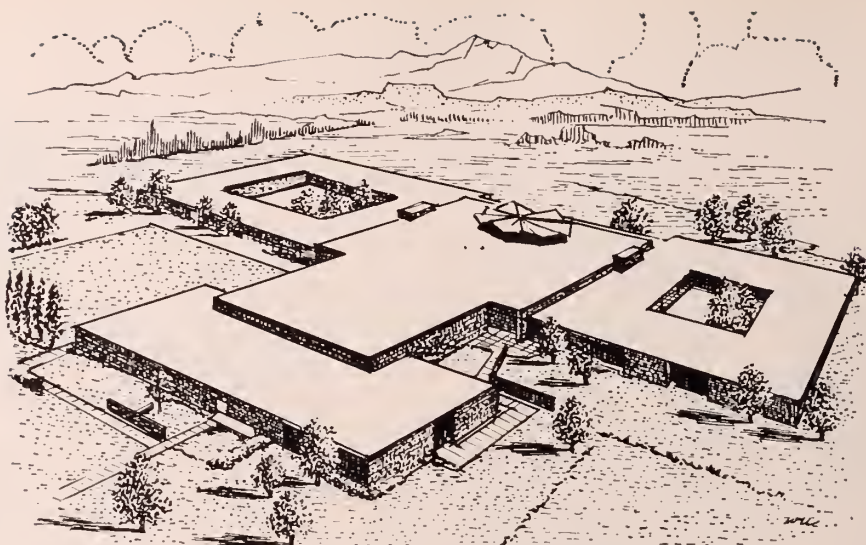
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A Comparison of Traditional and Modern Treatment of Inhalant Allergy

By DR. ETHAN ALLAN BROWN,* *M.R.C.S. (England), L.R.C.P. (London)*

A revolutionary change in the method of treating a number of allergic disorders was first brought to the attention of allergists approximately eight years ago. Almost all of the patients who were sensitive to pollens, molds, house dust, danders and venoms could be completely or almost completely relieved of their symptoms by means of one, or at the most, three injections of emulsified extract. Vaccines might similarly be administered for long-lasting protective effects.

The use of emulsions to prolong the absorption period of injected substances is not new. It was thought of as long ago as 1897 when butter was used as the vehicle for the administration of tubercle bacilli. Several types of emulsions including the Freund adjuvant have been discovered and rediscovered by several independently working groups of investigators who were regularly able to induce in animals high levels of protective antibodies. Their emulsions could not be used in the treatment of pollen sensitivity because the release of the extract induced systemic reactions. As soon as a stable emulsion had been prepared, it became possible to treat allergic human beings.

As quickly as the manner of inducing protection had been changed, the monolithic structure of traditional allergy was seen in its true light. Practices which had been deemed to be integral parts of the traditional structure of allergy were obviously petrifications of procedures once important but no longer necessary. There is no need to subject a patient to hundreds of skin tests; to rigid programs of injections taken at regular intervals for many years before the results may be measured; to the restriction of the quantities of extract administered to the minimum amounts which would achieve results for fear of inducing local or systemic reactions, or to the continuation of the treatment for indefinitely

prolonged spans of time.

New Method

The methods of treating patients by means of emulsified extracts, and the results which may be obtained have been the subjects of more than 50 published papers. I plan to show how the practice of allergy developed into the pattern of its recent past, and how this pattern imposed upon the allergist and the referring physicians a set of relationships which were, in their time, unavoidable, but which have been replaced by new relationships of which every internist and generalist must become aware if he is to understand his role in the establishment of the patient's ultimate welfare. It will be seen that the new method of treatment is almost entirely to the advantage of the patient. When in the light of present knowledge we realize what the allergic patient had to undergo to obtain treatment, his fortitude becomes a subject of admiration and respect.

It all began when the practice of allergy forced the allergist, through no fault of his own, to become an individualist whose extracts, skin test procedures and treatment schedules were peculiarly his own, and only generally related in principle to those of any other allergist who might perhaps treat other allergic patients who resided in the same city or area.

Primarily, an allergist deals with the harmful effects of otherwise harmless substances. When other physicians treat a disease or a disorder by means of a drug, they hope that the therapeutic substance will not be the cause of another disorder, namely an allergic reaction. When it is, they are left with the initial disorder and must find other means of treatment. It is obvious that the allergist treats the allergic disorder by means of the substance which is its cause.

Should the allergist administer too little of what

**Director, Asthma Research Foundation, Inc.*
Boston, Mass.

the patient is allergic to, the results are not proportional to quantities injected. To give a patient a top dose of half that which he needs to become well may result in an improvement hardly at all noticeable. The administration of too much of the extract or its accidental intravascular injection brings on immediate symptoms of the type the treatment aims to eliminate. The best results are achieved when the patient receives almost as much extract as would result in a systemic reaction but not quite enough to cause one. To practice poor allergy, that is, to get well perhaps no more than the number who were due to enjoy a spontaneous remission or to respond to placebo medication is simplicity itself. To practice a high grade of allergy and to get almost all of the patients well is as difficult a task as a physician can set himself.

Until recently, an allergist who set up a practice of allergy in a community new to him was literally forced to re-discover the entire field of allergy. The texts could furnish him with only the most general of guides. A good number of botanical surveys have been made, and there are few areas in which some pollen slides have not at one time been exposed. When these must be related to the patients of a city or of a part of a city they are representative of inadequate numbers of unrelated facts.

If he wishes to know what the causes of his patients' symptoms may be, the allergist must do his own surveys. These, at intervals, must be repeated, because cities grow in size, agricultural practices change and air pollution may affect both the local flora and the patients. The types of patients seen in a practice also differ with the passage of time. Ethnic customs, the cultural characteristics and the economic status may change. People travel more, and when at home live out of doors more and more. Refrigeration, freezing and the distribution of foods by supermarkets have all of them changed the dietary habits of ethnic groups and have also made articles of diet at one time seasonal available throughout the year.

Until recently there were no commercially available extracts suitable for each locale. The allergist who took a post-graduate course learned how to prepare his own extracts. He would return to his office to make the extracts he needed and also what were termed "autogenous" extracts of substances difficult to identify but characteristic of an environment in which the patient suffered discomfort.

When the allergist was instrumental in the founding of an allergy clinic, it was usual for the chore of the preparation of extracts to be transferred to the laboratory of the clinic, in which case the same materials, as they were used for the patients of the clinic, also became available for the physicians of the clinic and hospital staffs. This innocent and seemingly reasonable activity led to the autonomy of a group of physicians whose patients were all treated by the one extract which was not similar to that prepared elsewhere. There was a Balkanization of the practice of allergy, the boundaries of which were jealously guarded. Few if any allergist abused the system, but it lent itself to a series of far-reaching abuses not envisaged when the individual preparation of extracts was a grim necessity. Only a new method of treatment could free the allergists, the referring physicians and the patients from the shackles of the system. Anyone who thinks that it was the allergist who was adverse to change should bear in mind that it took four years and a cost measured in millions of dollars for one drug manufacturer to change his laboratory equipment, labels and advertising to the metric system.

What were these evils which by insensible steps and dévious routes all of us (I must include my own practice) unwittingly conspired to perpetuate and which those of us who were aware of what was occurring could not escape from?

Once having prepared his own extracts and having found himself in a position in which he could not cease using them because it would mean the adjustments of doses and probably more frequent injections of any number of patients treated at the clinic, in his private practice and by the referring physician, the allergist used them for skin test purposes. The patients' sensitivities were then classified in accordance with their reactions to the particular extracts. If any evaluation was to stand scrutiny, controls were needed. It appeared to be no more than common sense to test every patient with every extract. The next step was the routinizing of the skin test procedures at the clinic and then in private practice. Skin test reactions were observed to occur when tests were done with extracts of substances not apparently related to the patient's complaint. Who was to say that these did not represent subsidiary sensitivities, and as such should be eliminated from the diet, if foods, or from the environment, if inhalant? The effects of the restrictions

might not be measurable, but perhaps they lessened the patient's total allergic load, which was an elegant phrase to express the supposed fact that less extract might be needed to achieve a clinical result.

Extensive Testing

The numbers of tests grew and the time and effort needed to do them increased from one to several, (usually five or more) skin test sessions. If there was added to the tests, an examination of the organs which were the site of allergy no matter how normal these might be between pollen seasons and, in addition, the standard laboratory procedures, the five sessions became "studies". With the need to do many tests, the sessions became "complete studies". Despite the fact that the amount of information acquired is in inverse proportion to the number of laboratory tests done, the patient paid for the studies in time, effort and fees. He had no voice in the matter. The alternate choice was not to be treated. It has been estimated that there are more than five million patients who will not subject themselves to the skin test procedures and are therefore not treated by the injections they need.

There is no disagreement among allergists that the test reactions must be interpreted. This consideration did not affect the owners of the commercial laboratories who saw in the skin test sessions an opportunity to earn fees which were out of all proportion to the effect involved. In the states where the regulations permitted the practice, the commercial laboratories by-passed the allergist's fee for studies by advertising directly to the referring physician that they could do as well for less. They sought to get two fees, the one for the tests and the other for the extract which they furnished to the unwary physician for the treatment of the patient who had been tested.

In some states, the referring physician could save the patient the fee for studies by doing them himself. The obliging laboratory would send him, ostensibly free of charge, a skin-testing kit. If he would oblige by doing the tests for which he could ethically charge the patient and would send the report of the skin test reactions to the laboratory, "prescription" mixtures would be prepared for the injection program of the patient. No one could criticize the physician for treating his own patients except that the mixtures injected were hardly ever, if at all, related to the patient's sensitivities. The

skin tests were not skin tests, and the injections were not injections, although the resemblances led everyone concerned to believe that the patient would get well. There were those patients who appeared to derive some benefit from what they were subjected to, but the relationship was more frequently coincidental than otherwise. The patient's treatment however poor was related to the extract furnished by the so-called laboratory.

A Change

When the referring physician expressed a wish to treat his own patient he was no better off as far as the extract was concerned. It could not be shipped to the physician for the treatment of any patient, but it could be sent out in bulk or in sets of vials for the injections of the patients who had been referred. In some instances the fee went to the hospital laboratory in which the extract had been prepared, but it more often went to the allergist. As the allergist's practice grew so did the amount of extract sold. A new set of relationships came into being.

The patient paid for the extract, but what he did not always realize was that he had tied himself to the one allergist as far as his treatment was concerned. He could not go to another physician unless the allergist consented to supply the same extract for the continuation of the injections. He could not, in fact, choose another allergist without being forced to carry the triple burden of new studies, a different extract and more frequent injections at a greater over-all cost.

The physician could not change allergists and neither could he change to commercially available extracts unless he was prepared to do skin tests and resume the treatment schedules with lower doses and more frequent intervals. The studies did not frequently but could become an end in themselves and, in the same sense, so could the sale of extracts.

The injection of extracts is a dangerous procedure. Anyone who doubts the variety of the preceding statement need only read the instructions for the treatment of systemic reactions which accompany the extracts offered for sale by any pharmaceutical manufacturer. Although it might not be needed during a lifetime of practice, it is suggested that the physician have on hand, a syringe fitted with a needle sufficiently long for the injection of epinephrine into the heart itself.

To make certain that the intracardiac injection of epinephrine is not necessary except when an injection is accidentally placed into a vessel, the al-

lergist will tend to make the quantities injected smaller than they need to be. It was at one time thought that one could trade time for extract; that is, small amounts injected over a long period would be the equivalent of larger quantities injected for a shorter span of time. It is now known that any quantity below a given threshold, no matter how often it may be injected, is without any effect whatever. In any case, granted that the amount injected is enough to induce protection, it will always be administered with cautious increases so that over-dose reaction will not occur.

Prolonged Treatment

Laudable as the aim of the program may be, it tends, because of two reasons, to prolong the course of treatment. It takes a long time to get the majority of the patients well. The texts agree that only 10 to 15 per cent of the patients are free of symptoms after the first year of treatment and that, with each additional year of treatment, another 10 to 15 per cent report improvement so that by the fifth year of taking the injections perhaps 80 to 90 per cent of the patients need no supplementary treatment by means of drugs.

As soon as the patient has proven that he has received enough extract, as a top dose, to keep him comfortable, this amount of extract becomes the maintenance dose. At the most, if it is sufficiently great, the intervals between injections widen so that they may perhaps be extended to as long as three weeks or four and sometimes five or six weeks. It is immediately apparent that there is something wrong.

The patient is being treated as though his exposure were not seasonal but perennial. The amount of extract he receives is just about enough to maintain his protection, and he cannot cease treatment with any assurance that he will remain well. He is, in fact, warned against the cessation of treatment because it is known that the protection is short-lived and the loss of what has been achieved at the expense of so much time and effort can only be regained by beginning at the beginning, with the injections administered at the more frequent intervals—once or twice weekly for some months or years. Few patients wish to be so inprudent.

There are undoubtedly some patients who, despite the minimum treatment may respond so well that they might cease taking their injections and, for one or two or more seasons, remain well. There is no method of discovering who these patients might be. In them, the injections do not increase

their levels of protection, but are rather no more than placebos if only because they are not needed. Should the patient wish to inquire as to whether he should cease taking his injections where is he to receive impartial advice? Everyone to whom he directs himself has a financial stake in his decision because of the subtle change in attitude toward him. The injections are not administered in order to get the patient well. He is well. The injections are not given so that the patient may remain well, if only because no one knows whether he will or will not retain any hyposensitization levels. The injections are continued for the sake of giving injections and for the only reason anyone can unearth and that is, if they are not continued the disorder might return and more injections might be needed. I have met patients who, for this one reason, have taken injections of unemulsified extract for more than 30 years.

Unwarranted Conclusions

It would appear that I have portrayed the referring physician and the allergist in an unfavorable light. There were the studies, and often annual re-evaluation studies, the sale of extracts, the prolonged courses of injections no matter which of the physicians administered them and the indefinitely prolonged periods of treatment. It would also seem as though the patient had become a valuable piece of property. I would be the first to protest that these conclusions would not be warranted. I did the same studies, which, at the clinic, were matters of routine. It never occurred to me that I had ever requested any because of the fee which accrued to the institution. My office practice was as conformist as it could be to the pattern which had been established years before I had been born.

In the laboratories of the hospital of the clinic of which I was the Physician-in-Chief the extracts we used were prepared. I considered them the best available and the least expensive as far as the staff physician and the patients were concerned. When a patient who had been treated elsewhere was referred to my colleagues or to me, it was obviously good sense to test him with the extracts with which we planned to treat him. Some time had usually lapsed since the last injection. A reduction in the quantity injected when we knew it or could relate the extract used to our extract was the safest procedure we could follow. That the patient was being penalized by being forced to take more injections at more frequent intervals and at greater expense

to him was looked upon as a necessary evil concerning which nothing could be done. It occurred to no one that the patient had exchanged one set of bonds for another, except when what we thought of as an unreasonable patient objected to being tested and, in fact, re-treated.

Each of the physicians of the staff of the clinic, in turn, supplied extracts to their referring physicians. The actual costs of the material were negligible, but it never crossed our minds that we were not deserving of fees for the knowledge and judgment which went into the making of the dilutions and the sending of the schedules of the progressive quantities to be injected. The referring physician was not fully trusted. The instructions told him how to reduce the quantity injected when a large local or systemic reaction was reported. I cannot recall ever instructing the generalist in how to go ahead more quickly should no local reactions be observed.

If I deny that I regard my previous methods of diagnosis and treatment with cynical eyes, then how did this picture of the abuses of the studies, the sale of extracts, the prolonged courses of injections indefinitely protracted, develop? When treatment by means of emulsified extract became generally available, the old patients accepted it wholeheartedly. Patients who had not been referred soon reported for treatment. In fact, the stream of referred patients soon diminished, but only temporarily, to a trickle. The generalists were sending their patients elsewhere for studies and treatment.

One of the physicians who had previously been responsible for large numbers of patients explained the facts of life to me. He had set aside one evening each week for the purpose of giving injections of which he and a nurse hired for the occasion were able to administer more than 100 during a three-hour session. The boxes of vials, arranged alphabetically as sent out by the obliging allergist's office (mine) were placed in a special refrigerator. He did not wish to subscribe to a new method of treatment which would deprive him of more than \$15,000 in annual injection fees for an overhead of less than \$750. If I refused to deal with him, he would broadcast my lack of co-operation to all of the members of his local medical group. I refused to be blackmailed.

Patient Acceptance

I decided to do a survey. Each of the new patients, some of whom had suffered from hay fever or pollen asthma for up to 40 years was asked why he had never previously sought treatment. Al-

though few objected to all of the aspects of traditional treatment, there was no aspect of it that many of the patients did not recognize for what it was and therefore refused to accept. In other words, when the presenting disorder was a seasonal hay fever, it was the patients who rejected the idea that hundreds of skin tests were necessary. There were those to whom it made sense that the skin tests might uncover sensitivities of which they might not be aware and which during the pollen season might act cumulatively with the pollen to be the causes of symptoms. They had, however, learned that if they did take treatment it would take years to get well and if they wanted to change to another physician all of the tests would be repeated and the injections would be administered more often.

Some of the patients because of their occupations travelled and for others the weekly visit to the physician represented a complex procedure because of the presence in their homes of infants or children or of ailing older people. Some were accustomed to going south during the winter months and others went north during the summer. They did not wish to carry extracts with them and not only to arrange for their continuous refrigeration, but also to be forced to find a physician willing to inject a substance of which the composition or dilution was unknown to him. The parents of some of the younger patients did not wish them to embark upon programs of treatment which would be interrupted when they went off to college, and some of the older patients, for equally cogent reasons, did not want to obligate themselves to long-drawn-out programs of injections with results promised for "the year after next".

There is no aspect of the traditional method of treatment which has not been changed by the use of emulsified extracts. It would be best to begin with the extract itself.

Extracts

The specialists in the manufacture of extracts can exercise quality control over the raw materials, namely the pollens, molds, danders and similar substances used for treatment purposes. The hospital laboratory technicians or the individual physicians either do not know how or lack the means of checking the purity, that is, freedom from adulteration of the pollens or other basic substances they purchase or gather. Some collectors supply superbly clean pollens. The products of none are

uniform from season to season and always free of molds or bacteria.

The preparation of extracts is no longer a do-it-yourself job, but rather a specialized procedure. There are the problems of pH, of buffered extracting fluids, of stability and of standardization which cannot be matched in the laboratory of the allergist which lacks the equipment needed and could ill afford its cost for the quantities of extract prepared. Commercial extracts are sterile and may be purchased in freeze-dried form so that the stability of the extract is no longer a problem.

An extract which is contaminated, irritating or of poor quality may be used for the treatment of patients who receive injections of unemulsified extract, because it makes little difference in the end result. When viable bacteria are injected in an unemulsified extract they are uncommonly the reason for an abscess, but are rather disposed of by the usual defenses of the tissues. When injected in an emulsion the bacteria may remain viable for 100 to 200 days or more.

An extract which is irritating is absorbed rapidly when not emulsified and the irritation is, at the most, responsible for a transient swelling. When placed in an emulsion, which remains at the site of an injection for three to 10 weeks, an irritant extract will be the cause of a cyst. The eventual level of protection of the patient may be higher than was planned, but no patient enjoys having a cyst aspirated or treated surgically.

Dilutions

An extract which is of poor quality or which has been prepared from a mixture of several pollens and molds, rather than from one pollen, will not represent the dose intended for the patient. Smaller than maximum quantities are not less effective, but may be ineffective. The allergist who treats traditionally prepares extract throughout the year and dilutes some of the new extract with some of the old so that no patient receives an injection of new (that is "hot") extract until it has usually been aged for several months. It has been discovered that the quantities injected need not be reduced overmuch if one-fourth of the extract is new and three-fourths old. For the next few weeks the mixture is half-and-half, and after another few weeks, when every patient has received more than one injection of the two mixtures, the ratio between the new and the old extracts is 3:1. All the new extract which, by the time all of the dilutions have been done, is old extract not placed into circulation for treatment purposes until it has been aged. Few

physicians who prepare too much extract will discard it because of its not having been used within a reasonable period although deterioration is more than 50 per cent within 12 months after preparation.

The extracts prepared for emulsification are almost always fresh. They are made up just before the treatment period. Any which are not used serve for test purposes. In this regard the age of the extracts and their deterioration do not matter because the test reaction is regarded as confirmatory and not as an indication of the degree of the patient's sensitivity. In other words, the dose administered does not depend on the size of the skin test reaction as elicited by any given dilution of extract.

The patient need be tested only with the extracts of the pollens which are those chiefly present during his season of discomfort. He may be tested to the pollens and molds of secondary importance but usually, for the first year, these are not used for treatment. The protection acquired is often so high that the secondarily present pollens are not the causes of symptoms. Should they be identified as the reasons for transient discomfort on the basis of common patterns of response as demonstrated by other patients who have reacted similarly to tests, the extracts may be included with the primary pollens for the second year of treatment.

The referring physician is responsible, as he should be, for the physical examination if any is needed, although the allergist will often check the nose and throat and the lungs and heart. Any other laboratory studies are also the province of the patient's personal physician. There are no routine skin tests and nothing which may be termed studies. The patient is spared the necessity of four to six sessions for test purposes and the fees as well as the time are saved because there are no delays in the initiation of treatment.

Emulsified Extracts

The extract must be emulsified by machine. The emulsion is stable under ordinary circumstances, but it cannot be shipped because extremes of heat or cold will break it down, namely, cause syneresis. It is best to prepare it and inject it as soon as it is complete so that there is no free extract which may be the cause of a reaction, local or systemic. There is no safer injection than a correctly prepared emulsion, and none more dangerous than one in which syneresis has occurred.

The allergist is responsible for the preparation

and the administration of the injection. When a patient is being transferred from one type of treatment to the other, there are no problems. One injection, no matter what the extract previously used may have been, is sufficient treatment if the injection of emulsified extract is administered within four to six weeks of the onset of the pollen season.

A previously untreated patient will receive the few skin tests and will be given his first, that is, conditioning injection as soon as the test reactions have been read. He will be asked to return for his injection for the full quantity he will be thought to need as estimated on the basis of his clinical sensitivity, from 12 to two weeks before the beginning of the pollen season. In fewer than one patient in 30, the sensitivity is great or what amounts to the same thing, the exposure is great, and for the first year of treatment the acceptance of a third injection will be suggested. The injections can be spaced at intervals of three to six weeks. The dates depend on when the patient first reports for treatment.

A patient who may be allergic to two successively appearing pollens requires three injections. There is the first conditioning dose followed in three to six weeks by the full dose. In the same syringe with the second injection is the conditioning dose of the second pollen extract. Its full dose will be administered some six or more weeks later but may be given in as short as two or three weeks or spaced for administration in eight to 12 or more weeks. A similar pattern is followed for the patient who may be allergic to three successively appearing groups of seasonal pollens. Extract of house dust or of molds may be added to the contents of any syringe and the patient is thereby saved the time and expense of additional trips to the allergist's office.

Danders and Venoms

A patient allergic to a dander or to several may be treated at regular intervals of three to six or more months, or after the three injections have been taken, at intervals of one month, may be permitted to go without injections until the need for them proves itself by the recurrence of symptoms at which time one injection is all the patient needs to make him symptom-free.

Those who are allergic to the venoms may receive three injections one month apart once yearly, or if they reside where bees or wasps or similar insects are in the air at any time of the year, may receive their initial injections and another every three months. There is no doubt as to the efficacy of the method of treatment because it can be

proved to the patient that he may permit himself to be stung while in the allergist's office. There will be a slight local reaction and no systemic effects. If the patient should report too late for the course of three injections mentioned, the pure venom (not the extract of whole insect bodies) may be injected within the space of a day and the proof of hypersensitization demonstrated in the same manner.

The results of treatment must be experienced to be believed. I am not always convinced by my own data and check it and recheck it and I am then hesitant to report it. I have, on my desk, the reports of the treatment of the tree, grass and ragweed sensitive patients of 1963. Were I to put them into print, my closest friends would probably accept them, but I would task if not outrage their capacity for belief. The reports had best come from others which, in time, they will.

It is clear that the responsibility is where it should be, on the shoulders of the consultant. It is equally clear that he will not be content with "just enough" treatment because he will not be limited by playing it safe when he sends the extract and a schedule of doses to be given, to the referring physician. In the most sensitive of his patients as defined either by their skin test reactions or by their clinical histories of symptoms (from the earliest to the latest dates of pollination or of severity as recalcitrant to medical treatment) he may safely inject much larger quantities of extract than he had ever deemed possible. It is possible to take a scratch test reactive patient and treat him with successive doses of 1,500 to 3,000, 3,000 to 5,000 and 10,000 to 15,000 protein nitrogen units when the same patient reacts systemically to an injection of unemulsified extract of 50 units.

Clinical Results

More of the patients do well and much more quickly that is for the ensuing season. For the first year of injections I expect more than 85 per cent of the patients to be completely free of symptoms or, at the most, to suffer from occasional discomfort so minor that no medicine need be taken, or if it is taken then more for prophylactic than for any other reasons. For the second year of treatment the 15 per cent who have by no means been failures but rather have not been completely made well respond either to greater quantities of injected extracts or to mixtures in which are contained the secondary pollens or molds to which they were sensitive but for which no treatment was given. There is a small number of patients who

develop new sensitivities in the same manner as they developed those for which they requested treatment. These are uncovered and the patients will usually do well for the following season. There are always a few patients who purchase pets or who have their houses remodeled or painted or who live where new highways are being bulldozed or whose circumstances are such that the much greater-than-usual exposure could not have been anticipated. The same sets of circumstances are not often repeated for the next pollen season, or the patient learns what he must avoid exposure to during the period when he is also exposed to the pollen to which he is allergic.

The patient receives the maximum amount of protection and only for the pollen season. Although he is not hyposensitized as though he were to be faced with exposure throughout the year, the larger quantities of extract do often permit him to travel to other areas where he may be exposed to the same or a related pollen, and if too much time has not passed since he took his treatment he will, in general, remain well. In any case, there is enough hyposensitization which lasts until it is time for the next season's injection or injections. Almost all allergists will, although it is not necessary, attempt to treat the patient with more extract so that he may withstand greater exposure for longer spans of time.

The patient is informed, when he first is referred, that he will be treated for two, or at the longest, should he develop no new sensitivities, three seasons. He will then be asked to defer any additional injections so that it may be learned whether these are truly needed. To insure a long period of remission, the allergist will tend to inject larger quantities of extract although there is no clear-cut relationship between larger doses and increased hyposensitization on a linear basis. In other words, twice the quantity of extract injected cannot be depended upon to result in twice the degree of protection, or in protection which will last twice as long, or longer.

Approximately 30 per cent of the patients who cease treatment after two or three years of injections report mild symptoms during the days of peak pollination of the next pollen season. They may go without injections for a second year before they return for two successive years of pre-seasonal treatment. The patients who comprise the other 70 per cent may go for as short a time as three years, or for so long a period that it has not as yet been fully measured in that symptoms have not yet appeared some six or more years

since they last received an injection.

The referring physician and the allergist cannot make the patient as well as possible for the first year or two of exposure and not, simultaneously, prepare the patient to cease treatment. The chain which lies between having to reach an interval of four to six weeks between injections and the fear of cessation of treatment with its inevitable sequel — the need to return to injections taken every week or perhaps twice a week has been broken. Should the symptoms recur, they may be treated medically for the few days they will be experienced because an injection of emulsified extract will quickly prove its beneficial effects. There is no penalty attached to the deferring of another year of injections.

The rigid schedule of injections needed each week no longer exists. The patient who travels need not carry extract with him. Children who are sent to resorts need not take injections while they are away from their personal physicians or the consultant. When a patient because of intercurrent illness or an accident misses any traditionally given extract, he is penalized by the nature of the treatment because the quantity injected must be reduced. Should he take no injections for one month, the dose is reduced to what it was four weeks earlier. His schedule is eight weeks behind. The pollination period will, as usual, give or take a few days, arrive on time for a patient not prepared to meet it.

Physician Acceptance

Almost all of the allergists who have converted their practices to the administration of emulsified extract have welcomed the opportunity to be free of the burden of preparing their own extracts. A uniformity of treatment has imposed itself upon the practice of allergy. A patient who moves to another area may write for a list of physicians who will treat him in the same manner. A telephone call is enough to insure that he receives his first injection usually of the same quantity of extract as he previously accepted with no reaction. A confirmatory letter puts him in a position to continue with his injections as though he had not moved except as, in the new location, treatment for other pollens or molds may be needed. The patient who is not tied by the extract to the referring physician or the consultant has regained his choice of physicians. He is, at the moment, limited to the 500 or more allergists who treat with emulsified extracts, but he was previously

limited to the one allergist who furnished the extract. Should the extracts used be dissimilar, the gap between them may be bridged by one intermediate dose which means no more than one additional injection.

Allergists have been reported as saying that their referring generalists will not go along willingly with programs of treatment which deprive them of continued supervision of their patients. There are those who are skeptical and the others who are conservative, while others again may maintain a wait-and-see attitude. This is as it should be as regards any method of treatment of which the long-range effects may be in doubt, if only because they will not be apparent except for the passage of time.

In my experience, the patients force the issue. Word quickly spreads and the referring physician who wishes to hold on to the old because of any personal factor will soon find that his patients are deserting him and going directly to the specialist who has always possessed the right to treat them. It becomes unprofitable to maintain the traditional conventions of the one-night-a-week of injections. His life becomes much more pleasant when he is free of seeing patients during the pollen seasons, and especially when he does not find himself treating status asthmaticus during the major holiday weekends.

Why has the new method of treatment spread so slowly through the ranks of allergists? When consideration is given to what the changeover entails it is remarkable that there are more than 500 who have gone to the trouble of obtaining laboratory space and of training technical staffs in the preparation and administration of emulsified extracts. The adjustments which must be made are many and complex.

The skin tests sessions have all but vanished except for the diagnosis of some of the allergic disorders of children. The allergist's own appointment schedules are changed beyond recognition for the patients treated in his office. To have a patient's treatment altered from once weekly to once yearly requires much explanation and major re-arrangements of vacation times, bookkeeping practices and billing procedures. The reports which must be dictated are so different that it is difficult to relate them to those of the past. Third party and insurance carriers must be informed of the changes which, to date, they have accepted but sometimes only after detailed explanations. Clinic hours and days must be re-arranged and the busy

and slack times of the year are considerably modified. Had I known what I was getting into I think I would have hesitated longer than I did. I sympathize with the older allergist who never abused any of the aspects of traditional treatment and with only a few years of practice ahead of him must make the decision as to whether he will remain with the old which stood him in such good stead, or go along with the new, with which he is not entirely familiar.

To my mind the most difficult aspect of the new type of treatment to comprehend is the fact that it does not lend itself to be introduced, one step at a time. Some physicians have discovered that during the transition period it is necessary to have two offices, one for the traditionally treated and one for the present day treated patients. It is as simple as the fact that a syringe which has been used for the injection of an unemulsified extract cannot be used for one in which an emulsified extract must be administered, if only because a trace of glycerol as used in the preparation of the one extract destroys the emulsion of the other.

No one could possibly have anticipated what has indeed happened. It was Spinoza who first said that we desire nothing because it is good, but call it good because we desire it. There are many physicians to whom opsiphylactic treatment, that is the injections of emulsified extract for delayed hyposensitization effects, represents a pattern of life which is not desirable. They have little choice except to label it as not good. The allergists who use emulsified extracts make no statements as to the desirability or lack of it of the method of treatment and the patients who have received the injections have shown no wish to return to the traditional method of being treated.

What is of the greatest importance is the fact that the allergist can practice with a new dignity. The pattern of his speciality is that of medicine in general. It is a pattern into which no abuses can creep, wittingly or unwittingly. He treats no patient prophylactically, that is on the basis of the skin test reaction, but rather only true sensitivities. At the most, the allergist might be tempted to prolong the treatment period for another year or perhaps two. The patient will not permit him to extend treatment except for a good reason because a patient who ceases to take his injections of emulsified extract is not penalized. If,

before the pollen season, he should change his mind, he can refer himself to any allergist and at the most receive two instead of one injection.

The revolutionary method of treating patients allergic to inhalant substances resulted in an

equally revolutionary point of view toward the treatment of allergic disorders. This was shared by the patients, the referring physician and the allergists. Is it not about time?

75 Bay State Road

Hyperpyrexia During Promazine Therapy

WILLIAM F. DOWLING, M.D.,* *San Francisco*, and THOMAS R. HUNT, JR., M.D.,**
Kansas City

Drug fever is unusual, seldom serious, but does occur often enough to be an annoying and perplexing problem to the physician. Among the recently introduced group of agents generally called tranquilizers, only chlorpromazine has previously been recorded as producing fever.¹

In the case reported below, promazine hydrochloride, 10 (gamma-dimethylamino-n-propyl) phenothiazine hydrochloride, apparently induced pyrexia.

Case

L.C., a 48-year-old white male, entered Southern Pacific Memorial Hospital for the first time on August 8, 1958. His complaint was "nervousness". He stated that for the last several months he had suffered from attacks of "nervousness" while at his job as an electrician. These attacks typically consisted of feelings of anxiety accompanied by tachypnea, paresthesias of the extremities and the circumoral region, and occasionally with syncope. He claimed to have had an attack 10 days prior to admission. Communication from the local physician revealed, however, that at that time he had threatened his own life and the lives of his family. He had, therefore, been confined in a local hospital prior to being transferred to this institution.

On the evening of admission the patient was given 50 mg. of chlorpromazine intramuscularly for agitation. The following morning he was calm and cooperative though manifesting inappropriateness and evasiveness. Physical examination at that time was within normal limits except for a pulse rate of 120 and the presence of slightly hyperactive deep tendon reflexes. Admission complete blood count and urinalysis were essentially normal. The patient was seen repeatedly by the psychiatric consultant who felt that he represented a psychoneurotic personality with manic-

depressive tendencies. He was placed on promazine by mouth, 100 mg. every four hours, and assigned attendants (who remained with him at all times) for constant observation.

On the third hospital day a rectal temperature elevation of 102.2° F. was noted. A temperature elevation was recorded daily thereafter (Fig. 1). It was usually noted in the afternoon with a return to normal levels the following morning. The patient was totally asymptomatic during these episodes. There were no physical findings that suggested an etiology for the fever. Multiple blood cultures, febrile agglutination studies, and studies for parasites or urinary tract infection were consistently negative. The chest remained clear on X-ray examination. An electroencephalogram was reported as "borderline abnormal, non-specific".

On the eighth hospital day, promazine was discontinued. The patient's temperature rapidly returned to normal and remained so for the next five days. On the 13th day promazine was again administered. No other medications were given. The following day the patient was again noted to be febrile. Daily elevations of temperature persisted as long as the drug was administered. Aside from fever, the patient remained asymptomatic. The temperature once again returned to normal when the drug was discontinued.

During the entire hospitalization the patient remained symptom-free, happy and cooperative. Because of the improvement in his mental attitude and the lack of positive findings, he was discharged on the 25th hospital day.

Discussion

As shown on the fever chart (Fig. 1), our patient had a rather abrupt temperature elevation approximately 36 hours after instituting promazine therapy. The pattern of the fever was dis-

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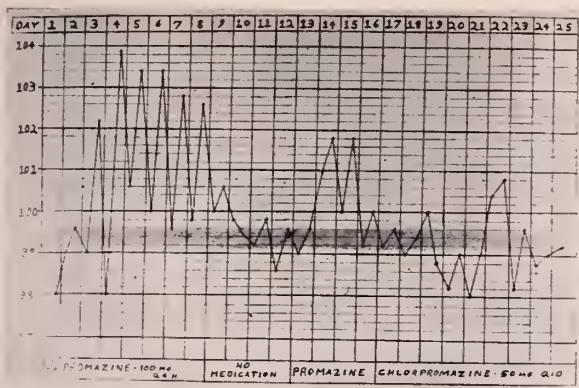


Fig. 1—Fever Chart

Abrupt temperature elevation approximately 36 hours after instituting promazine. Lysis followed within 12 hours of discontinuing the drug. A similar pattern is demonstrated following reinstitution of promazine therapy. The shaded area indicates the normal range of rectal temperatures.

continuous with defervescence occurring by crisis within 12 hours of discontinuing the drug. A second course of therapy again resulted in an irregular pyrexia that subsided rapidly on stopping the administration of promazine. An adequate trial of an analogue of promazine, chlorpromazine, was not possible; however, a febrile response was recorded on one occasion after the latter drug had been given.

Fever has not previously been ascribed to promazine. Fever has been described as complicating chlorpromazine therapy, a drug that is also a phenothiazine derivative, differing only from promazine in the additional chlorine radical. This

hyperthermic response was unexpected in view of Courvoisier and her associates' early demonstration in animals that hypothermia was one of the pharmacodynamic properties of chlorpromazine²; however, Kinross-Wright has stated that this hypothermic response is rarely seen clinically³.

The probable mechanism of fever production previously postulated for chlorpromazine—toxic action on the reticular activating system and the hypothalamus—is apparently applicable in this case. Supporting this postulation, promazine's closely related analogue, chlorpromazine, was shown by Ayd, in a fatal case, to have produced neuronal cell changes in the thalamus and hypothalamus⁴.

Awareness on the part of the physician that promazine may induce hyperthermic states will prevent tedious and prolonged diagnostic studies. Once recognized, one cannot accept the view that this is a nuisance factor in view of the report of a fatality following hyperthermia induced by chlorpromazine.

Conclusion

This is apparently the first patient exhibiting hyperthermia during promazine therapy. It appears that the spectra of toxicity secondary to promazine is similar in type if not in occurrence to its analogue, chlorpromazine.

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N. M. Heart Ass'n. Meets May 22

Dr. Alfred N. Brest, Associate Professor Of Medicine at Hahnemann Medical College and Hospital at Philadelphia, and Dr. George C. Morris, Jr., Associate Professor at Baylor University College of Medicine at Houston, will be among the speakers at the annual scientific meeting of the New Mexico Heart Association in Albuquerque, May 22, 1964.

Dr. Brest will be the banquet speaker at 7:30 p.m. and will talk on "Kidney Transplantation". Headquarters for the meeting will be at the White Winrock Motor Hotel. Members of the New Mex-

ico Heart Association, wives and guests are invited.

The complete program is as follows:

Program

Morning Session: Cerebrovascular Insufficiency

- 9:00 a.m. Welcome: Paul H. Noth, M.D., Los Alamos, Immediate Past President, New Mexico Heart Association
- 9:05 a.m. Differential Diagnosis of Cerebrovascular Insufficiency, Benjamin T. Selving, M.D., Albuquerque
- 9:30 a.m. Long-term Anticoagulant Therapy in

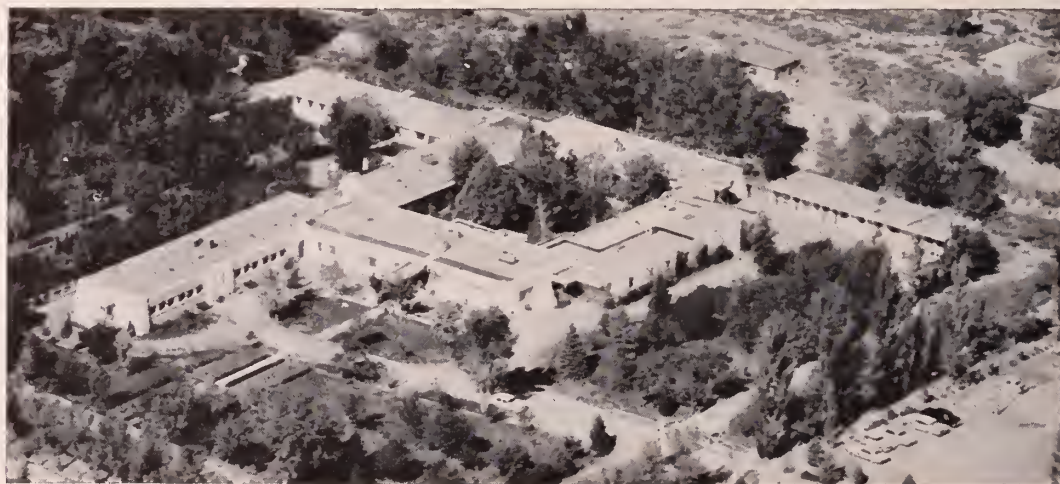
- Cerebrovascular Insufficiency, Leroy J. Miller, M.D., Albuquerque
- 9:45 a.m. Surgical Treatment of Cerebrovascular Insufficiency, George C. Morris, Jr., M.D., Associate Professor, Baylor University College of Medicine, Houston
- 10:15 a.m. Rehabilitation of the Hemiplegiac, Freeman Fountain, M.D., Albuquerque
- 10:45 a.m. Coffee Break
- 11:00 a.m. Panel Discussion: Cerebrovascular Insufficiency
Moderator: Michael Pollay, M.D., Albuquerque
Participants: Drs. Selving, Miller, Morris, and Fountain
- Afternoon Session: Hypertension
- 2:00 p.m. Diagnostic Approach to the Patient with Hypertension, Martin Brandfonbrener, M.D., Albuquerque
- 2:30 p.m. Diagnosis of Pheochromocytoma, Grace Roth, Ph.D., Albuquerque
- 2:45 p.m. Surgical Treatment of Hypertension, Alfred N. Brest, M.D., Associate Pro-

- fessor of Medicine, Hahnemann Medical College and Hospital, Philadelphia
- 3:45 p.m. Coffee Break
- 4:00 p.m. Panel Discussion: Hypertension
Moderator: Robert Friedenberg, M.D., Albuquerque
Participants: Drs. Brandfonbrener, Roth, Morris and Brest
- 6:30 p.m. Cocktail hour
- 7:30 p.m. Banquet
Banquet speaker: Albert N. Brest, M.D., Kidney Transplantation
- Merck Sharp & Dohme, Inc., have made possible the appearance of Dr. Brest and Charles Pfizer & Co., the appearance of Dr. Morris.*

Coming Meetings

New Mexico Chapter, American Academy of General Practice, Summer Clinic, Ruidoso, N.M., July 20-23, 1964.

Southwestern Medical Association, 46th Annual Meeting, Flamingo Hotel, Las Vegas, Nev., October 22-24, 1964.



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June, 1964

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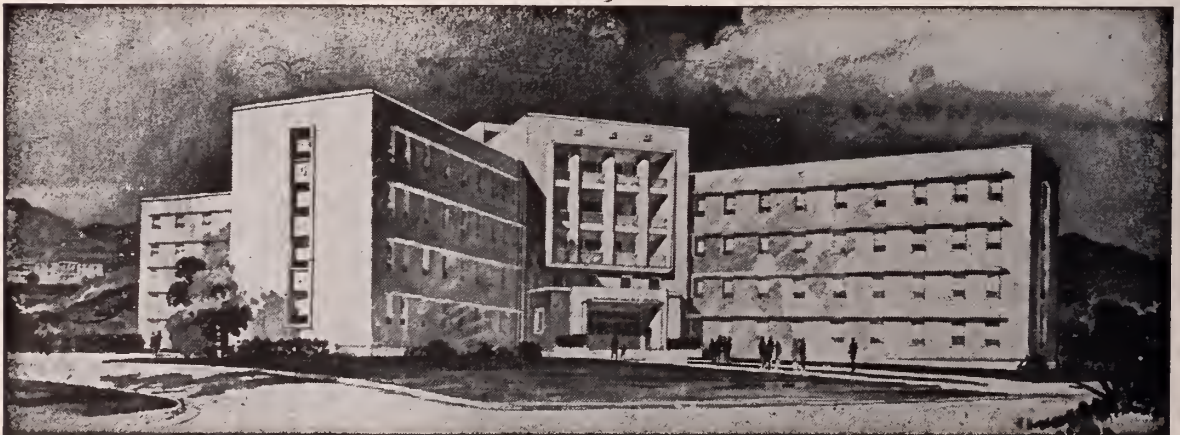
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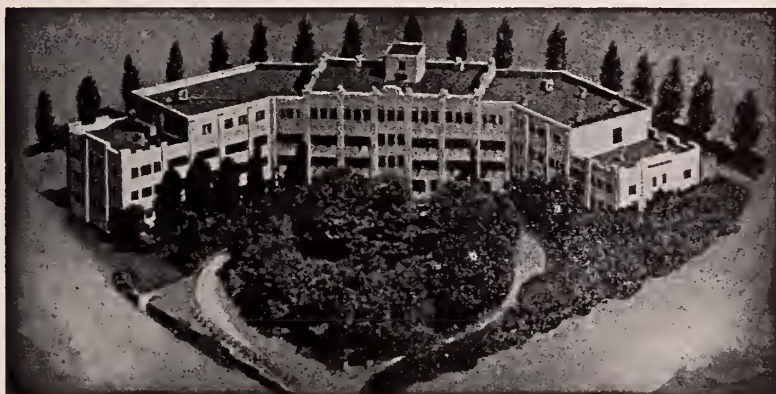
COMING MEETINGS

New Mexico Chapter, American Academy of General Practice, Summer Clinic, Ruidoso, N. M., July 20-23, 1964.

Western Association of Railway Surgeons, Annual Meeting, Sun Valley, Idaho, Oct. 7-11, 1964.

Southwestern Medical Association, 46th Annual Meeting, Flamingo Hotel, Las Vegas, Nev., Oct. 22-24, 1964.

Southwest Obstetrical and Gynecological Society, Annual Meeting, El Paso, Oct. 29-31, 1964.



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MEETINGS

Seventh Annual Ruidoso Summer Clinic

Faculty for the Seventh Annual Ruidoso Summer Clinic at Ruidoso, New Mexico, July 20-23, 1964, will be provided by the School of Medicine at the University of Oregon. The Clinic is being presented by the New Mexico Academy of General Practice and has been approved for 12 Hours of Category I Credit.

Members of the Faculty will be Dr. William S. Fletcher, Assistant Professor of Surgery, Dr. Ralph C. Benson, Professor of Obstetrics and Gynecology, Dr. Robert A. Campbell, Assistant Professor of Pediatrics, and Dr. J. David Bristow, Assistant Professor of Medicine.

Speaker at the annual banquet on July 22nd will be Dr. Julius Michaelson, Foley, Alabama, president of the AAGP.

Registration fee is \$25 but this has been waived this year for physicians in the Armed Services, the Public Health Service, the Faculty of the Medical School of the University of New Mexico, and Interns and Residents. Scientific exhibits are being installed this year for the first time at the meeting.

Headquarters for the popular summer session, high in the cool pines of the Sacramento Mountains in southern New Mexico, will be the Chaparral Motel. Reservations should be made directly with the Motel.

The Clinic regularly draws physicians from New Mexico, Arizona, Texas, and Colorado. This year's session has already drawn inquiries from the mid-west and the east in addition to the above area.

Officers of the N. M. Chapter of the AAGP are Dr. Walter Hopkins, Lovington, President; Dr. Bram Vanderstok, Ruidoso, President-Elect; Dr. James A. Koch, Albuquerque, Vice-President; and

Dr. Herschel L. Douglas, Tatum, Secretary-Treasurer.

Two new additions to numerous attractions of the summer vacation area are the ice-skating rink near the Chaparral Motel and the year-round ski lift at the Sierra Blanca Ski Resort on the Mescalero Indian Reservation. The Clinic confines its scientific sessions to mornings and afternoons are left open for golfing, fishing, horseback riding, sightseeing in the scenic grandeur of the mountain terrain, and horse-racing on weekends. Nearby are the White Sands National Monument, Carlsbad Caverns National Park, Bottomless Lake State Park, and the historic town of Lincoln, where Billy the Kid made his last escape.

The complete program is as follows.

Monday—July 20

- | | |
|-----------|--|
| 8:00 | Registration—Lobby of Chaparral Motel |
| 8:00-8:45 | Buffet Breakfast |
| 8:45 | Moderator and Welcome Address: Walter Hopkins, M.D., President, New Mexico Academy of General Practice |
| 9:00 | Surgery—The Elective Surgery of Peptic Ulcer—William S. Fletcher, M.D. |
| 9:25 | Medicine—Treatment of Coronary Artery Disease—J. David Bristow, M.D. |
| 9:50 | Surgery—The Emergency Surgical Management of Peptic Ulcer—William S. Fletcher, M.D. |
| 10:15 | Coffee |

10:35 Medicine—Treatment of the Hypertensive Patient—J. David Bristow, M.D.

11:00 Open Question and Discussion Period

12:00 Luncheon

1:00 Business Meeting

Tuesday—July 21

8:00-8:45 Buffet Breakfast

8:45 Moderator: Bram Vanderstock, M.D., President, New Mexico Academy of General Practice

9:00 Surgery—Current Concepts in Cancer Chemo-therapy—William S. Fletcher, M.D.

9:25 Medicine—Selection of Patients for Cardiac Surgery—J. David Bristow, M.D.

9:50 Surgery—General Principles in the Management of Thoracic and Abdominal Trauma—William S. Fletcher, M.D.

10:15 Coffee

10:35 Medicine—An Evaluation of the Results of Heart Valve Replacement—J. David Bristow, M.D.

11:00 Open Question and Discussion Period

12:00 Luncheon

Wednesday—July 22

8:00-8:45 Breakfast
Moderator: Herschel L. Douglas, M.D., Secretary-Treasurer, New Mexico Academy of General Practice

9:00 OB-GYN—Diagnosis and Radiological Treatment of Cancer of the Cervix—Dr. Ralph C. Benson

9:25 Pediatrics—Sweat Chloride Studies in Fibrocystic Disease—Robert A. Campbell, M.D.

9:50 OB-GYN—Surgical Treatment of Cancer of the Cervix
Treatment of Cancer of the Cervix in Pregnancy—Ralph C. Benson, M.D.

10:15 Coffee

10:35 Pediatrics—Duodenal Drainage in Diagnosis of Fibrocystic Disease—Robert A. Campbell, M.D.

11:00 Open Discussion

12:00 Luncheon

7:00 Cocktails

8:00 Banquet—Speaker, Julius Michaelson, Foley, Ala., President AAGP

Thursday—July 23

8:00-8:45 Breakfast
Moderator: James Koch, M.D., Vice President, New Mexico Academy of General Practice

9:00 Pediatrics—Diagnosis of Nutritional Failure in Infancy—Robert A. Campbell, M.D.

9:25 OB-GYN—Diagnosis and Treatment of Cancer of the Endometrium—Ralph C. Benson, M.D.

9:50 Pediatrics—Newer Concepts in Infant Nutrition—Robert A. Campbell, M.D.

10:15 Coffee

10:35 OB-GYN—Diagnosis and Treatment of Cancer of the Ovary—Ralph C. Benson, M.D.

11:00 Open Discussion

12:00 Luncheon

N. M. Medical Society Officers Named

Dr. Omar Legant, Albuquerque, was elected president of the New Mexico Medical Society at its 82nd annual meeting in Carlsbad, N. M., April 14-17, 1964.

Other new officers are Dr. Robert P. Beaudette, Raton, President-Elect, and Dr. T. Lyle Carr, Albuquerque, Vice-President. Dr. Hugh B. Woodward, Albuquerque, continues as Secretary-Treasurer for the last half of a two-year term.

Dr. Leland S. Evans, Las Cruces, is delegate to the AMA through the end of 1964. Dr. Allan L. Haynes, Clovis, was elected AMA delegate for 1965. Dr. James C. Sedgwick, Las Cruces, was elected alternate delegate to the AMA. Dr. W. W. Kridelbaugh, Albuquerque, was re-elected to a three-year term as councilor, and Dr. Richard C. Sherman, Alamogordo, to a three-year term as councilor.

Santa Fe will be the site of the 1965 meeting and Albuquerque was selected for the 1966 meeting. Interim meetings will be held at Los Alamos in 1964 and Clovis in 1965.

Born in New York City, Dr. Legant received his B. A. from Columbia College and his M. D. from the College of Physicians and Surgeons at

Columbia University. He interned at Bellevue Hospital for two years and then took a two-year residency in Radiology at the Columbia Presbyterian Medical Center, where he served briefly as an Instructor. He began the practice of medicine in Albuquerque in 1950 and at the same time became Director of Department of Radiology at St. Joseph's Hospital there. He is now a partner with Dr. James Galloway at Encino Medical Plaza.

Dr. Legant served for eight years as President of the New Mexico Physicians Service, is a Past Vice-President of New Mexico Blue Shield and at present a member of its board of directors, a Past President of the Bernilillo County Medical Association, a past member of the national board of directors of the American Cancer Society, a past secretary of the N. M. Medical Society and a past speaker for its House of Delegates.

He served in the Navy Medical Corps for four and one-half years with two years' service in the Southwest Pacific and emerged with the rank of lieutenant commander.

He and his wife reside at 1000 Los Arvoles N.W., Albuquerque, with their four children, Patricia 17, Paul 15, Amy 13 and Ellen nine.



COMMUNITY SERVICE AWARD—Dr. E. J. Hubbard, Dexter, N. M., right, is presented the A. H. Robins Award for Community Service from Dr. C. Pardue Bunch, Artesia, N. M., immediate Past President of the N. M. Medical Society, at its recent annual meeting in Carlsbad. Dr. Hubbard, 84, practiced medicine for 47 years in Dexter until his retirement in 1958. One of his sons is a physician, Dr. David G. Hubbard of Dallas, a psychiatrist, who has written a collection of short stories, to be published in the near future by Random House.



NEW OFFICERS—Among new officers of the New Mexico Medical Society elected at the annual meeting in Carlsbad, N. M., are Dr. Omar Legant, Albuquerque, President, second from left, Dr. Robert P. Beaudette, Raton, President-Elect, left, Dr. Hugh B. Woodward, Albuquerque, who continues as Secretary-Treasurer for the last half of a two-year term, second from right, and Dr. Leland S. Evans, Las Cruces, delegate to the AMA through 1964. Not shown are Dr. T. Lyle Carr, Albuquerque, Vice-President, Dr. Allan L. Haynes, Clovis, AMA delegate for 1965, and Dr. James C. Sedgwick, Las Cruces, alternate delegate to the AMA.

Plans for S. W. Medical Assn.

Meeting Progress

Chauncey D. Leake, Ph.D., one of the nation's outstanding Pharmacologists, will be a member of the Faculty which will address members of the Southwestern Medical Association at its 46th annual meeting in Las Vegas, Nevada, October 22-24, 1964.

Dr. Leake is Senior Lecturer in Medical History and Pharmacology at the School of Medicine, University of California, San Francisco Medical Center, which will provide the Faculty for the Southwestern meeting.

Dr. Leake will speak at a luncheon October 23 on "The Treatment of Anxiety". Subject for the session that day will be "The Hypertensive Patient". He will also participate in a panel and open forum the same day on "Therapy of Hypertension".

Word of Dr. Leake's acceptance for participation in the program came from Dr. Piero Mustacchi, Acting Head of Continuing Education in Medicine for the School, according to an announcement by Dr. Frank A. Shallenberger, Tucson, President of the Southwestern Medical Association.

Dr. Mustacchi reported that the Faculty at the meeting will speak on three general topics, one for each day of the convention. In addition to the above subject for the 23rd, "Systemic and Local Aspects of Urolithiasis" will be discussed on the 22nd and "Diabetes and Renal Disease" on the 24th.

Headquarters for the meeting will be the Flamingo Hotel.

Dr. Leake was President of the American Society of Pharmacology from 1958 to 1960, President of the American Association for the Advancement of Science in 1960, and Chairman of the AMA Section on Pharmacology in 1937. He is the author of eight books, a prominent editor of medical



Dr. Leake

and science periodicals and has written over 400 articles relating to science and philosophy.

In addition to his position as Lecturer at the University of California School of Medicine at San Francisco, Dr. Leake is Coordinator of the Medical Student Research Training Program and Professor of Medical Jurisprudence at The Hastings College of the Law in San Francisco.

Born in Elizabeth, New Jersey, in 1896, he holds degrees from Princeton University and the University of Wisconsin. He was Assistant Professor of Pharmacology at the University of Wisconsin from 1923 to 1928, Professor of Pharmacology at the University of California, where he organized the department, from 1928 to 1942, Executive Vice President of the University of Texas Medical Branch from 1942 to 1955, and Professor of Pharmacology and Lecturer in the History and Philosophy of Medicine at Ohio State University from 1955 to 1962.

He has been a Consultant for the National Research Council and the USPHS, received a special award from the International Anesthesia Research Society in 1928, and is an Honorary Fellow of the American College of Dentists. He was president of the History of Science Society from 1936 to 1939.

Thyroiditis in Childhood

C. HERBERT FREDELL, M.D., F.A.C.S.**

Enlargement of the thyroid gland in children is not seen very often in the average physician's experience. When he sees an enlarged thyroid gland he should remember that there is a high incidence of malignancy in nodular goiters in children. Batsakis and Nishiyama found 32 cases of carcinoma in 136 thyroidectomies done in children and adolescents.² They also noted seven cases of thyroiditis.

One of the less common causes of thyroid enlargement in childhood as well as amongst adults is thyroiditis. It may produce nodular goiter and pose a diagnosis problem for the surgeon. Opinion is accumulating in recent years that questions the validity of excision in many cases of thyroiditis that might better be treated with thyroid extract.^{1,8,17} Appreciation of the etiology of thyroiditis makes the non-surgical approach more reasonable.

The etiology of struma lymphomatosa or lymphocytic thyroiditis or Hashimoto's thyroiditis was clarified considerably by the work of Raitt and Doniach¹⁶ when they demonstrated auto-antibodies in Hashimoto's thyroiditis. Shands²⁰ noted that a patient produces antibodies to tissue components

of his own thyroid follicle with an immune cellular response and damage to the follicular tissue. Clay and Johnson⁶ noted that thyroiditis patients had a consistent abnormal disparity of protein bound iodine and butanol extractable iodinated compounds in the circulation.

Shands described the pathological changes of a gradual lymphoid invasion and progressive destruction of the follicles of the thyroid by the autoimmune process with progressive deprivation of thyroid function. There is progressive inability of the gland to respond to the thyroid stimulatory hormone. During this process there is often compensatory hyperplasia and clinical enlargement and nodularity. This continuous process can be arrested or slowed by the oral administration of desiccated thyroid. If a patient has thyroiditis there is a likelihood that thyroid supplementary therapy will be necessary for the rest of her life.

The increasing incidence of thyroiditis in adults has received frequent comment.^{3,11,14,15} The disease is also occurring with greater frequency in childhood.^{2,5,20} Brown reported a case of an 11 year old

**Chief of Surgery, Flagstaff Hospital, Flagstaff, Arizona

girl with acute and chronic non-specific thyroiditis who simulated carcinoma in 1959 and found 31 similar cases reported in the literature. This has presented a need for the surgeon to more carefully evaluate his indications for surgery in certain enlargements of the thyroid in children as well as adults.

Three Main Categories

Pathologically the three main categories of thyroiditis are the struma lymphomatosa or Hashimoto's thyroiditis, Reidel's struma or fibrous thyroiditis, and the unclassified thyroiditis with the giant cells and other elements that has mislead the pathologist on occasion to diagnose a malignancy.¹⁵ Batsakis and Nishiyama² and Shands²⁰ have noted a definite difference between the lymphocytic thyroiditis and the Hashimoto thyroiditis. The lymphocytic involvement is without epithelial alteration in the former while the latter has oxyphilic changes in the follicular epithelium with small round follicles with little colloid. Patients with prolonged thiouracil therapy and patients with I 131 therapy for Graves disease will have microscopic changes seen in their thyroid glands similar to struma lymphomatosa.²⁰

The diagnosis of thyroiditis may be suspected on the clinical findings and history yet the diagnosis is not made accurately prior to thyroidectomy in many cases. To avoid possible unnecessary surgery efforts have been directed toward diagnostic tests that would be dependable. While not always diagnostic the tanned red blood cell hemagglutinin test, the serum electrophoretic study, the I 131 scintigram and needle biopsy have all been used with increasing frequency when the question of surgical therapy has arisen.^{3,8,10,11,12}

Management of Patients

The management of patients with thyroiditis still remains controversial. The pitfalls of clinical diagnosis, the equivocal results of the serum studies, and the errors in needle biopsy and frozen section examination all contribute to a sense of uneasiness in the minds of several surgeons when they are confronted with a patient with an enlarged or nodular thyroid.^{13,14,15,19}

The clinical and gross changes of Reidel's thyroiditis are usually accurately diagnosed by the surgeon. Most agree that simple isthmusectomy for

decompression only is the most surgery that this problem requires. The struma lymphomatosa is the group of patients who present the more complicated problems. Other types of thyroiditis will not be discussed in this paper.

The gross pathology of struma lymphomatosa has been described as being diffusely enlarged^{6,15} or nodular.^{4,14} It has been described as tender or non-tender; enlarging,¹⁴ or seldom a cosmetic problem.³ Variation in description of the disease by different authors alludes to the controversy concerning the disease. Many authors^{3,5,8,9,15,17} have agreed that the main problem is one of diagnosis and that the main reason for surgery in most cases of thyroiditis of the struma lymphomatosa type is to establish a diagnosis or to remove a bulk of thyroid tissue to relieve pressure symptoms. Usually a bilateral subtotal resection has been done.^{14,15}

Carcinoma Increasing

An increased incidence of carcinoma in thyroid glands with thyroiditis compared to the normal incidence of carcinoma has been noted.^{4,14,15,9,19,20} It has varied from five per cent to 11 per cent.¹³ Others^{3,8} feel that the incidence is not much more than three per cent and that malignancy is not a valid reason for aggressive surgical approach to the problem.

Beahrs³ has had satisfactory experience in screening his patients with needle biopsy before deciding what therapy is indicated. The patient with only thyroiditis is treated with thyroid by mouth for three to six months. If no regression in the size of the gland occurs then he recommends it be removed. He noted that the malignancies that were overlooked by that method of treatment were papillary well differentiated ones that remained operable for long periods of time thus allowing a safe delay period while receiving medical therapy.

Schlicke¹⁹ noted that an overall incidence of six per cent malignancy in 1,682 thyroidectomies with a 8.7 per cent incidence of carcinoma in the gland with struma lymphomatosa. He felt that the difficulty telling clinically which case of thyroiditis did or did not contain malignancy together with the unreliability of needle biopsy, and frozen section biopsy, made the surgical removal the preferred therapy from the onset. This has been reaffirmed by Pollack and Sprong.^{13,14} In a follow-up study of the patients with struma lymphomatosa that

had subtotal thyroidectomy they noted a frequent recurrence of symptoms and goiter. This they attributed to the remaining antigen source when a portion of the gland is not removed.

The surgical treatment of struma lymphomatosa is not without complications.¹⁷ Because of this Rudman has emphasized that surgery should be employed only as an instrument of diagnosis and one of decompression of a mass of symptom producing thyroid tissue.

Problem of Thyroid Nodules

In spite of the slow accumulation of opinion in favor of a more conservative attitude toward thyroiditis surgeons are propelled onward mainly by the fear of overlooking or not treating malignancy. This is particularly emphasized in the nodule or nodules that are felt in the thyroid gland. The problem of thyroid nodules has been recently studied with I 131 scintograms thinking that the measure of activity of a given nodule may indicate its malignant potentialities.^{10,13}

If a nodule has non-function or non-toxic hyperfunction immediate excision is indicated.¹⁰ If the nodule is hypofunctioning or normally functioning a three to six week trial of thyroid orally is indicated. If the nodule does not regress then excision is recommended. The use of thyroid orally for the treatment of multinodular goiters has been reported.^{1,8,12} Regression in the size of the gland has occurred and surgery has been avoided.

The nodule in association with thyroiditis is the same problem as the nodule without thyroiditis. The likelihood of malignancy in a solitary nodule has been reported to vary from 1.9 per cent to 19 per cent.¹⁰ The diagnostic error between the clinical examination of what is thought to be a solitary nodule which at surgery proves to be multiple nodules has been reported as high as 33 per cent by Cattell.¹⁰

The thyroid nodule and the nodular thyroid assumes serious proportions in childhood and adolescence. Ross¹⁸ noted in a series of 14 nodular goiters in this period of life that 50 per cent of them were malignant. This supports the author's contention that all nodular goiters in children should be removed. If a goiter contains only thyroiditis the child will probably need supplementary thyroid by mouth indefinitely. Careful observation

is necessary following thyroid surgery for a long period of time particularly when children are involved.

Report of A Case

A case of multinodular goiter was seen by the author in a nine year old girl on February 21, 1963. She gave a history of having a mass in her neck for the preceding seven months. The mass would vary in size and occasionally would be tender. It progressively enlarged to the time it was first seen. She had received no thyroid or thiouracil therapy.

Physical examination revealed a euthyroid girl with a three times normal enlarged thyroid gland with a fine nodularity within a firm gland. Her isthmus was more prominent than normal.

On March 1, 1963 a bilateral subtotal thyroidectomy including the isthmus was done in the Flagstaff Hospital. Grossly the gland had a tan appearance and seemed nodular throughout with bosselation. Microscopic examination revealed the parenchyma to be separated into irregular nodules by thin strands of dense fibrous tissue. The follicles were small with little colloid storage with areas of tall columnar epithelial cells rimming the follicles. There was much infiltration by lymphocytes with formation of numerous lymphoid follicles with prominent germinal centers. The diagnosis was chronic thyroiditis.

Postoperatively she had an uncomplicated two days in the hospital and a follow-up period of seven months. She has not required thyroid medication. Her neck remains asymptomatic and there are no palpable masses.

Comment

A case of chronic thyroiditis and nodular goiter in a nine year old girl has been presented. The precise diagnosis was not suspected prior to the examination in the operating room. A bilateral subtotal thyroidectomy including the isthmus was done. At the time the thyroid gland was sectioned a lymphocytic struma was suspected. This was confirmed by the pathological examination. Since surgery this patient has not required any therapy and has remained symptom free. Continuing follow-up examinations will be done for many years to completely study this problem.

It is the author's opinion that the problem of goiter in childhood is somewhat different than in adulthood. The higher incidence of malignancy in nodular goiter in children makes a more aggressive attitude toward any mass in the region of the thyroid mandatory.

When dealing with a nodule in an adult the best approach to it, whether in association with thyroiditis or not, is surgical excision. Multinodular goiter due to thyroiditis is still not a problem to be relegated to the medical men for therapy. After the diagnosis has been established by surgical excision of a portion of the gland it can then be safely treated by thyroid hormone. Overzealous removal of thyroid tissue in cases of fibrous thyroiditis is mentioned only to condemn it.

It seems unlikely that the increase of malignancy in a thyroid gland with thyroiditis is sufficient indication alone to justify routine thyroidectomy for all case of lymphocytic thyroiditis. If a patient is seen with a tender palpable thyroid without nodules an initial trial of thyroid hormone for one to two months is indicated. If no regression occurs then partial removal of the gland may be considered. At times the essential repeated examination of the gland in cases of suspected thyroiditis will reveal a nodule within the gland. It should be excised.

Summary

1. A search of the literature has revealed variation of experience and opinion concerning the diagnosis and treatment of struma lymphomatosa or Hashimoto's thyroiditis. A differentiation between lymphocytic goiter and struma lymphomatosa has been made by some authors, while others make no separation of these types.

2. The risk of malignancy in a gland with thyroiditis has been reported as being higher than what might be expected as a normal incidence. This author does not believe that this is sufficient indication alone for surgical therapy in every case of thyroiditis.

3. Surgery should largely be done for obtaining an accurate diagnosis and to decompress the neck when a bulk of thyroid tissue is so large that the patient has compression symptoms. Occasionally

the cosmetic appearance of a goiter is less desirable than a thyroidectomy scar.

4. A case of chronic thyroiditis in a multinodular goiter in a nine year old girl has been presented. A subtotal thyroidectomy was done uneventfully producing a good result.

Thyroiditis is increasing in frequency in childhood as well as adulthood. The etiology and treatment in each group is similar but not identical.

120 W. Fine Ave.

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Treatment of Otosclerosis

JAMES R. TABOR, M.D., *Denver*

Hearing loss in adults is common.

When such a patient is first seen the type of hearing loss is easily determined with a tuning fork. If the 1024 cycle per second tuning fork is better heard on the mastoid process by bone than by air (Rinne negative) the hearing impairment is conductive in nature. This finding is virtually a pathognomonic sign of a "middle ear" type of hearing loss. If the tympanic membrane appears normal a diagnosis of otosclerosis can now be made.

Progressive hearing loss is characteristic of otosclerosis. Because surgery for otosclerosis has attained a high degree of success, many people with this impairment may be helped.

This progressive hearing loss starts during the second or third decade of life and is simply a mechanical problem. The otosclerotic bone or focus originates from the edge of the oval window and represents an attempt to repair a tiny congenital defect in this region. This abnormal bone grows into the footplate of the stapes causing its fixation by varying degrees. This, of course, mechanically blocks the sound as it attempts to enter the inner ear through the stapes. The surgical problem is clear.

Gradual Loss

Since this hearing loss is very gradual and otherwise asymptomatic, the patient will first

notice that he misses words if the speaker is at some distance. He will state, "I cannot hear the speaker in a meeting or if someone talks with a soft voice in a quiet room". He may relate, "If the surroundings are noisy requiring people to speak up, I hear better than my friends". Commonly this patient may complain that he cannot hear television or family members while chewing noisy foods like potato chips.

In these individuals bone-conduction is better than air-conducted sound and noises from chewing heard by bone-conduction unduly interferes with the air-conducted conversation. Otosclerosis is familial and frequently half of the family members may have this type of hearing loss. As the hearing loss progresses many people purchase hearing aids to obtain the necessary amplification to carry on in business or social situations. Many have successfully worn a bone-conduction type of hearing aid in the past.

In contrast to the people with otosclerosis, individuals with sensori-neural hearing loss complain, "I can hear your voice but I cannot understand". They state, "When it is noisy or if more than one person is talking, I hardly get a word". Because a mixture of hearing losses may occur in one person, some of these people may have otosclerosis in addition to the sensori-neural loss. Some of these people, therefore, may be helped by stapes

surgery. The diagnosis of these losses is made by tuning fork and audiometric tests.

Extent of Loss

The physical examination is usually normal. The tympanic membrane appears healthy but the tuning fork tests are abnormal. Firstly, a 1024 cycle per second tuning fork placed on the forehead will lateralize to be best heard in the poorer ear. Secondly, the fork will be heard better on the mastoid by bone than by air (Rinne negative). This finding is virtually a pathognomonic sign of significant conductive hearing loss.

The audiometric tests in the soundproof room shows the exact extent of the hearing loss and the exact chance for surgical success. At this time current surgical techniques yield approximately 90 per cent chance for restoration of hearing to the "nerve" or bone-conduction level. This usually means a practical hearing level for the patient.

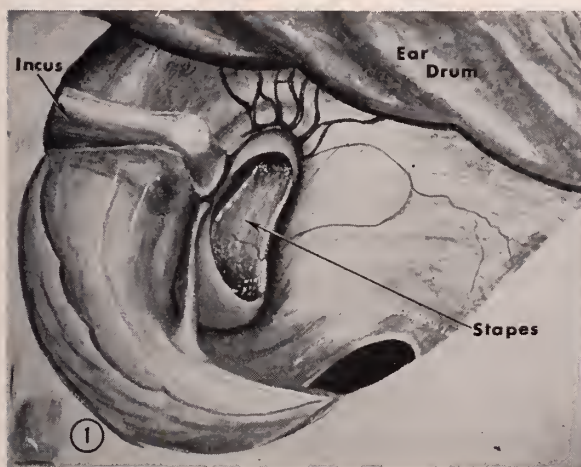


Figure 1

The ear drum is turned forward to expose the long process of the incus and the stapes.

Once the diagnosis is made, the first surgical step is to turn back the drum to expose the region of the stapes (FIG. 1). The second step is to remove the superstructure of the stapes so that the fixed footplate remains in place (FIG. 2). The footplate is partially removed by the use of small picks and hooks (FIG. 3). Since the fluid of the inner ear is exposed it is important that antibiotics are used during the post-operative period to eliminate possible labyrinthitis.¹

At times it is necessary to use a drill on a footplate greatly thickened by osteosclerotic bone. Although many types of prosthetics are used to re-

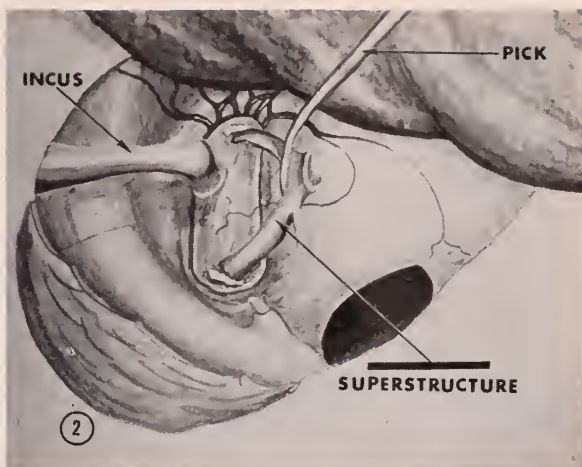


Figure 2

The superstructure of the stapes is removed with a pick so that the footplate of the stapes remains in place.

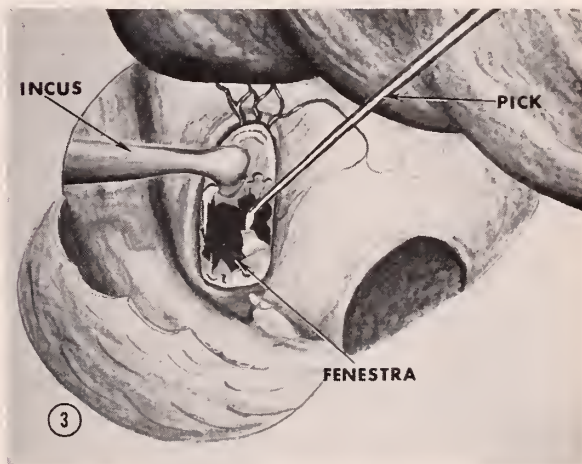


Figure 3

The footplate of the stapes is partially removed with a hook to expose the fluid of the inner ear.

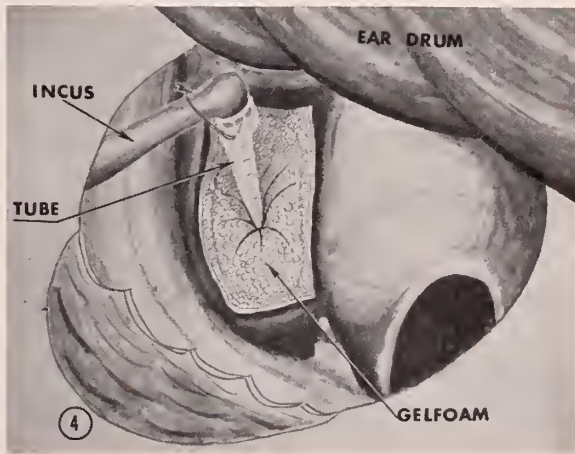


Figure 4

Gelfoam is placed over the fenestra in the footplate and the Teflon tube is placed between the incus and the Gelfoam.

place the stapes either wire or tubing is most common. After positioning Gelfoam over the footplate a Teflon tube may be placed between the incus and the Gelfoam (FIG. 4).² On the other hand a stainless steel wire may be placed between the incus and Gelfoam³ (FIG. 5) or a vein graft⁴ may be used with the wire in place of the Gelfoam.

Summary

Diagnosis of otosclerosis may be made by tuning fork tests. A high percentage of success now results from surgical techniques for this hearing impairment.

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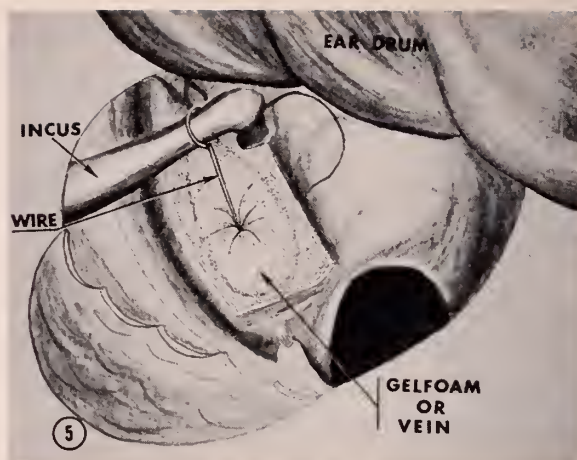


Figure 5

Gelfoam is placed over the fenestra in the footplate. A wire is placed on the Gelfoam and crimped about the long process of the incus.

18th Annual Rocky Mountain Cancer Conference Denver, Colorado, July 10-11

Program plans for the 18th Annual Rocky Mountain Cancer Conference in Denver, July 10-11, 1964, will include participation by Wendell G. Scott, M.D., President of the American Cancer Society, and Norman A. Welch, M.D., who will become President of the American Medical Association in late June.

The two-day conference in the Mile-High City's Brown Palace Hotel will feature a symposium on "Etiologic Agents of Cancer, Their Avoidance or Prevention" on the first morning followed by an afternoon of scientific papers. The second morning of the Conference will be devoted to a symposium on "Treatment of Cancer" with an "Information Please" session in the afternoon.

Other leading participants are Nobel Prize Winner Wendell M. Stanley, Ph.D., University of California, Virus Laboratory; Russell Ramon DeAl-

varez, M.D., Professor, Obstetrics and Gynecology, University of Washington School of Medicine; William M. Christopherson, M.D., Professor and Chairman, Department of Pathology, University of Louisville School of Medicine; R. Relton McCarroll, M.D., Orthopaedic Surgeon, St. Louis; W. P. L. Myers, M.D., Internist, Clinical Unit of Memorial Sloan-Kettering Cancer Center, New York; and Tom D. Throckmorton, M.D., Surgeon, Des Moines.

The conference is a joint effort of the Colorado Medical Society and the Colorado Division, American Cancer Society. Chairman for the 18th Annual Conference is N. Paul Isbell, M.D., of Denver. Further information on the conference may be obtained by writing: Rocky Mountain Cancer Conference, 1809 E. 18th Ave., Denver, Colorado 80218.



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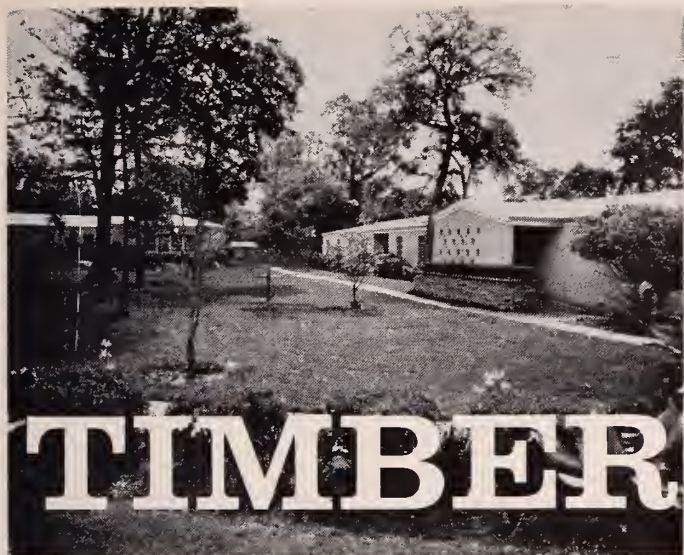


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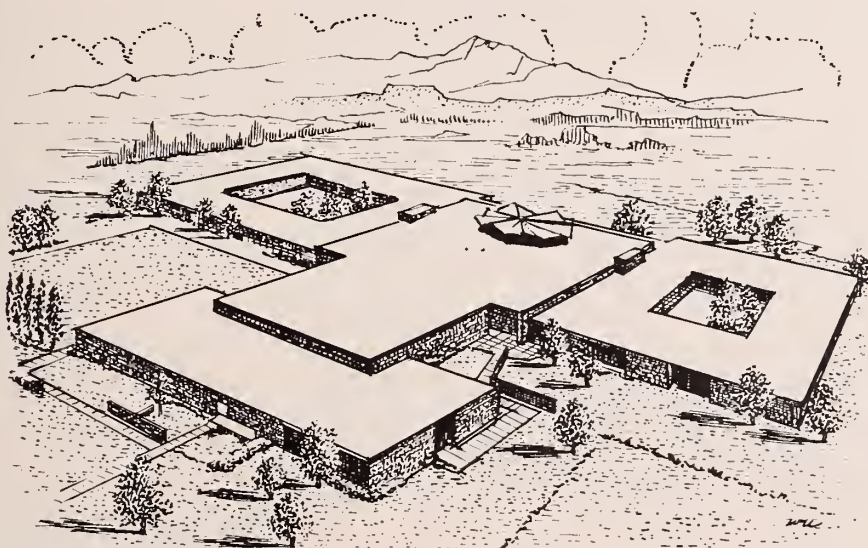
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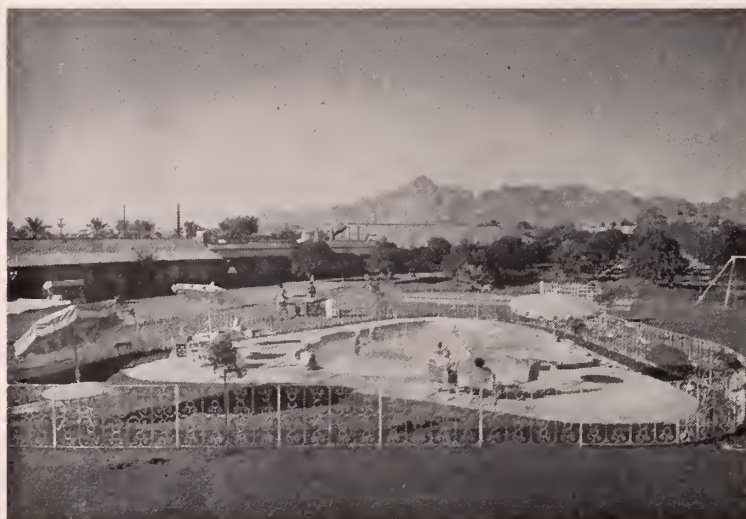
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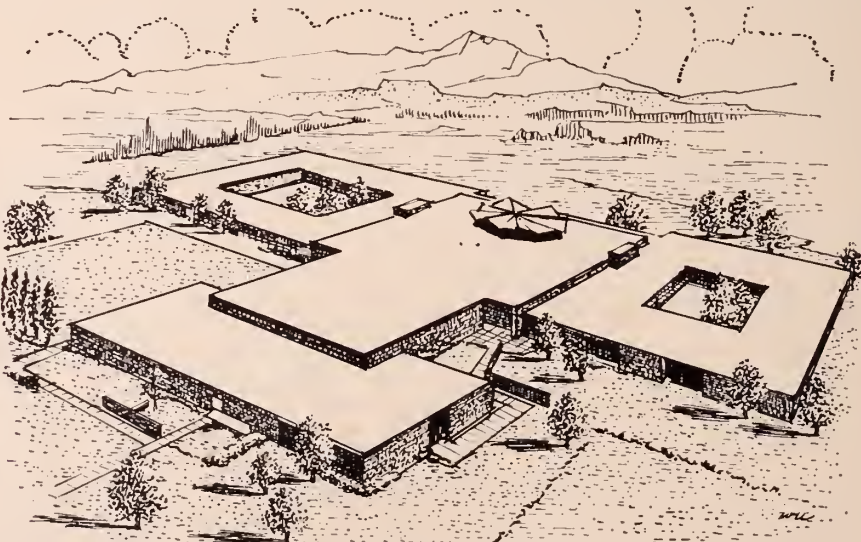
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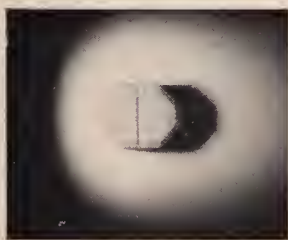
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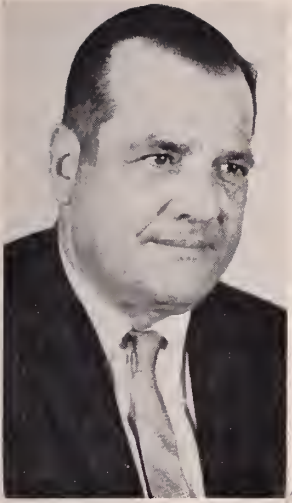
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Political Labels and Their Abuse

SOL HEINEMANN, M.D., *El Paso*

The medical profession, beset by national legislation that attempts to make changes in medical practice, has become more involved in politics than the physicians of yesteryear. Political labels today are more meaningful than political parties, yet their abuse has made them confusing. One finds liberals and conservatives in both parties and these vary from moderate to extreme.

In the use of a label as a descriptive term we have reached the point where too little thought is placed on the group and its actions and too much emphasis is placed on the label itself. I hope that by using examples I can partly clarify the basic meaning of these terms in the light of the personal philosophy of the involved groups. Certainly examining the philosophy of those so labeled will clarify how that group hopes to solve the problems we face and determine whether you can accept their mode of thinking.

Let us discuss the extremes of the politico-economic spectrum and then, moving toward the middle, try to define what is probably the basic thinking of the true liberal, the true conservative, and others.

The philosophy of the "Extreme Left" is that nothing of value can be accomplished in this country unless it is under a centralized plan and

authority. Those who think like the Americans for Democratic Action, feel that most national and local problems can only be solved by the federal government. It is their desire to have all planning centralized and all programs carried out on a nationwide scale, financed by taxation. This type of thinking, with planning and power originating at the top, is close to Socialism. These are the Planners. Their failure to date has been due to the fact that politicians running for national office must balance the degree of power they can assume against the resistance of the voters. So far the voter has only nibbled, but has not bought the pie. Many of the national programs that have been tried over the past 30 years have either failed or have become so expensive that they are in trouble today. We can summarize the thinking of these extremists by simply stating, "they know best what is best for everyone and are willing to plan for all."

In examining the extremists known as the "Far Right," we find a vociferous group who stands on the literal interpretation of the Constitution. There are very few who boldly admit their membership, yet examination of their philosophy usually makes them easy to recognize. This is the group who loudly defends individual liberty and

wants to keep the federal government out of everything. This group would make radical changes immediately, without thought of the consequences. While this group does not want the "bureaucrats" in control they are most hesitant to participate in solving problems of society at the local level; while fighting the efforts of the federal government to solve the problems of American society this group also fails to support the local voluntary efforts in his community that are aimed at attacking the same problems. This group is not in the forefront on local civic committees or as supporters of voluntary efforts such as the United Fund, etc. It is often difficult to understand an individual in this group because he usually talks a good game, wraps himself in the flag of patriotism, but does nothing constructive.

Let us now try to examine that most elusive group, the Liberals and Conservatives. In my opinion, these constitute only a small percentage of our society. The liberals are usually interested in solving all problems of our civilization and generally feel this should be done under governmental leadership and financing. These people are willing to take some part in the solution of the problems at the local level, but it usually has to be under a federal program. They are usually willing to be part of a local committee or governmental advisory committee but when there is a need for someone to roll up their sleeves and go to work, they prefer that there be a governmental agency to furnish the effort and sweat that is needed. They seem to throw up their hands and take an attitude of "what can I do?"

The conservatives too frequently suffer by the use of the term by the radical right. The true conservative prefers local action on local problems with as little government intervention as possible. These individuals, while they believe in keeping the federal control out of local problems, are more than willing to spend time and money on the civic committees and voluntary efforts of his community. There are few true conservatives to be found and many who call themselves liberal feel more at home with this group. The true conservative does not want to turn back the clock but does want to solve his own problems, and that of others, with as little governmental help as possible. This group usually earns the right to speak out as long as their personal action attempts to solve the problems of the society in which they live.

A great majority of the population cannot really be placed in either of these categories. Though they pre-empt the label of liberal or conservative, their position on each problem is usually that which best fits their *personal interest*. Prime examples are those who claim to be conservatives, except for their support of government parity and tax exemption for their Farm Co-op; union members who want Medicare or Old Age Assistance for their parents but decry government intervention in their labor contracts are other examples. In these cases these groups are swayed by the economy of their purse. Bond issues for local improvements are usually voted down, while they gratefully accept funds and planning for urban renewal from the government. We often see this group voting the Democratic ticket when the economy slows down and conversely voting the Republican ticket during periods of inflation. Samuel Lubell points this out, pointing to the victory of President Truman in 1948 as an example of the first, and the election of a Republican Congress in 1950 to illustrate the second point.

About 25 per cent of the voters use the label "independent" for themselves. These usually fall within the definition of liberal or conservative, but they dislike these terms. They frequently change from one party to the other, voting for the man or the principle, rather than the party.

In describing these basic generalizations it is hoped that political labels can have more meaning in the future. Too often they are used as epithets and rather than describing a political philosophy they lose their meaning to all of us. Only by understanding what a political label stands for can we hope to solve the many problems of our society. Without this understanding we find that we are listening to speeches that say nothing, and that rather than aiding us to arrive at a solution only divide our society into groups of "name callers." Constructive thinking is what is needed, and before this can be done we must define our terms rather than use them so loosely that they mean nothing. Let us hope this will clarify things for the young physician, who so often is beguiled by the glib talkers who are seldom the doers; whose half-truths neither give the facts nor help solve the problems.

1900 N. Oregon.

Cranberry Juice And The Reduction Of Ammoniacal Odor of Urine

R. J. KRAEMER, M.D., *Warwick, R. I.*

One of the most persistent and demoralizing of problems confronting the staffs of nursing homes and hospitals is the characteristic odor of fermenting urine. Inadequate staff and incontinent patients aggravate the situation. When it was called to our attention that the ingestion of cranberry juice ameliorated this disagreeable condition we undertook a limited research project and reached tentative conclusions.

Methods and Results

Six normal males, free from any urinary tract infections, were placed on a three-day dietary regimen. On the second day of this diet samples for their first three voidings were collected and analyzed. A sample of their first voiding upon rising on the third day was coded. Each of the test subjects then drank 16 ounces of cranberry juice and their next two voidings (No. 5 and 6) were collected for comparative evaluations. Hydrion pH paper was used in making pH determinations. Five of the six normal test subjects showed a lowered pH in the urine after a single drink of 16 ounces of cranberry juice (Table 1).

To further test the validity of our hypothesis,

it was decided that a more accurate method (Beckman meter) of determining pH be utilized and that urine samples be used as growth mediums for gas-forming bacteria.

Two urine samples from six test subjects with chronic urinary tract disorders were collected. The first sample served as a control; the second, obtained from the first voiding following the ingestion of 16 ounces of cranberry juice, was the test specimen. All of the six test subjects showed a lowering of pH in the urine by the Beckman meter, after ingesting the cranberry juice (Table 2). There was also a noticeable reduction of ammoniacal odor and turbidity.

The urine samples were inoculated with the same strain of *Escherichia coli*. A gas collection tube was inserted into each sample and they were incubated for 24 hours, after which the amount of gas produced was measured. In the samples obtained after ingestion of cranberry juice there was significantly less gas produced (Table 3).

Cranberry juice was employed in actual dietary use in two institutions, a nursing home and an "incontinent" ward in a state hospital. At both locations the cranberry juice was introduced into

Table 1
pH Determinations

Patient No.	Urine Spec. No. 1	Urine Spec. No. 2	Urine Spec. No. 3	Urine Spec. No. 4	Urine Spec. No. 5	Specimens No. 6
1	5	5	6	6	6	4
2	5	6	5	6	4	5
3	5	5	5	5	5	5
4	5	5	5	5	4	4
5	5	5	5	5	5	4
6	5	6	6	5	4	5

Table 2
pH Determinations

Patient No.	Urine Specimen No. 1	Urine Specimen No. 2
1	6.5	6.0
2	7.1	5.3
3	7.9	7.8
4	6.5	5.2
5	5.9	5.4
6	6.1	5.6

Table 3
Gas Production

Patient No.	Urine Specimen No. 1	Urine Specimen No. 2
1	+2*	+1
2	+3	+1
3	+1	+1
4	+3	+1
5	+1	+1
6	+2	+1

*+1 = <1 m.m gas

+2 = >1 and <2 m.m gas

+3 = >2 m.m. of gas

the patients' normal diets for five days. The juice was then withdrawn for five days, then reintroduced for five more days. Supervisory personnel made ammoniacal odor-reduction evaluations throughout the test periods.

Within hours after the ingestion of cranberry juice there was a positive decrease in the odor

level in both test areas. This abatement increased significantly during the five days of cranberry juice consumption. When the juice was not served, the odor levels returned to the previous norms. Upon resumption of cranberry juice consumption, the odor levels again substantially decreased. It was the positive opinion of the personnel involved that the consumption of the cranberry juice had definitely reduced the malodorous levels found in the test units.

Summary and Conclusions

It is well known that the alkalization and decomposition of urine, so-called ammoniacal fermentation, is the cause of bad odor from voided urine. We found that the ingestion of 16 ounces of cranberry juice lowered the pH in the test urines substantially. This acidification of the urine apparently is bacteriostatic enough to inhibit ammoniacal fermentation. This retardation reduces the odor of "incontinent" urine. The depression of gas production by the *E. coli* may also have some significance in relationship to the improved odor conditions in the test units noted during the periods of cranberry juice ingestion.

Since cranberry juice is a readily available and palatable addition to the dietary programs in nursing homes, hospitals and similar institutions, we are of the opinion that it could be a very desirable method of improving the environmental status of such places.

2907 Post Rd.

Dr. Johnson Elected TMA President

Dr. Max E. Johnson, a physician who has practiced medicine in San Antonio for 39 years, will serve as President of the Texas Medical Association for 1964-65.

The general practitioner was installed as head of the 9,000-member association during the TMA's 97th annual session in Houston. He succeeds Dr. Robert Mayo Tenery of Waxahachie.

Dr. Johnson has served as president of the Bexar County Medical Society, the Texas Indus-

trial Surgeons Association, the Bexar County Academy of General Practice, and the International Medical Assembly of Southwest Texas. He was vice president of the Texas Academy of General Practice in 1961-62.

Dr. Johnson was graduated in 1924 from The University of Texas Medical Branch in Galveston. He interned at Robert B. Green Hospital in San Antonio and served three years in the U. S. Army Medical Corps during World War II.

Nortriptyline*: A New Antidepressant Evaluated in a General Medical Practice

JAMES E. REEVES, M.D., *San Diego*

Since the introduction of iproniazid in 1957 for the treatment of the depressed state, a number of effective antidepressants have been marketed. The monoamine oxidase inhibitors following iproniazid have included hydrazines such as nialamide, phenelzine, pheniprazine, and isocarboxazid, as well as non-hydrazine derivatives such as etryptamine, tranlycypromine, and pargyline. Their mechanism of action is thought to be due to the elevation of brain catechol-amines (norepinephrine, epinephrine) or indole-amines (serotonin), whose destruction is prevented by the inhibition of monoamine oxidase. However this is not limited to the brain, so adverse effects have occurred. They pertain to interference with hepatic function, producing hepatitis, (iproniazid, pheniprazine), with the circulatory system inducing hypotension or paradoxical hypertension (pargyline and tranlycypromine), or to a depression of bone marrow (etryptamine).

There is also potentiation of medications likewise depressing the central nervous system (hypnotics, tranquilizers, hypnotic-sedatives, analgesics, anesthetics), or influencing the autonomic nervous system (atropine-like drugs, ganglionic blocking agents). Although there has been a very low incidence of adverse effects, their severity has prompted the withdrawal from the market in this country of such monoamine oxidase inhibitors as iproniazid, pheniprazine, etryptamine, and tranlycypromine.

A second group of antidepressant drugs, however, is as effective and has been shown to be

safer. The first of these non-monoamine oxidase inhibitors, imipramine, in 1957 failed in a large screening program as a tranquilizer, but passed when analysis of patients showed a high rate of improvement in the small group having depression.¹ Imipramine, itself, seems though to partake of side-effects common to both antidepressant and phenothiazine drugs, including a few instances of hepatitis, agranulocytosis, and Parkinsonism. A similar agent, amitriptyline, at the present time has not been shown to have these adverse effects. Other related drugs are now being evaluated in terms of superiority of clinical results, decreased incidence and frequency of side-effects, and increased potency. One of these, nortriptyline, is the subject of this clinical report.

The site of action of these antidepressants is not known. Rathbun and Slater² describe the antidepressant and tranquilizing action of nortriptyline as multi-neurohormonal. No striking changes were seen in the electrical activity recorded from surface and deep electrodes in the brain of unanesthetized cats treated orally with 1 to 5 mg./Kg. of nortriptyline. However, Himwich, et al, using larger dosages, namely 23 mg./Kg. IV, in rabbits found that, like similar antidepressants, it increased the sensitivity of rhinencephalic structures. This is shown by the occurrence of spontaneous, positive spikes, particularly in the amygdala, but also in the hippocampus and lateral hypothalamus³.

Animal data comparing the anticholinergic activity of nortriptyline and amitriptyline, in depressing the rate of salivation in dogs or in antagonizing experimentally-induced tremors in cats

**Aventyl, nortriptyline, Lilly*

have indicated that nortriptyline has less anticholinergic activity². One would then expect to find in patients a lower incidence of such side-effects as drowsiness, dryness of mouth, blurred vision, constipation and tachycardia.

Preliminary clinical data received from 150 investigators, who reported on some 2,000 patients, have confirmed this impression⁴. Clinical laboratory studies have also shown that nortriptyline has no detrimental effect on liver, renal, or bone marrow functions. Its clinical efficacy in various types of depressions and in the relief of secondary symptoms have been as good as any antidepressant currently available^{5,6,7}.

Patient Selection

This report concerns seventeen adult private patients aged 20 to 88, with eight over 60. There were 15 females and two males. Clinical diagnosis was as follows: anxiety reaction—six; anxiety-depressive reaction—two; and depressive reaction—nine. In addition, nine of the group had a medical diagnosis, namely: cardio-renal disease, coronary disease, hypertension, bronchial asthma, diabetes, menopausal syndrome, pruritus ani and Parkinsonism.

Nine of these patients had been refractory to tranquilizers, sedatives and other antidepressants.

Method of Study

Nortriptyline was administered from 10 mg. b.i.d. to 25 mg. q.i.d. Thirteen of the group received placebo medication for comparative evaluation in a uni-blind manner. The patients were instructed to take one capsule after meals and at bedtime, and were seen every one or two weeks when medication could be alternated with placebo. Therapy was continued for less than one month in six, while seven received medication for three or more months.

Clinical Results

Complete blood counts and urinalysis done before and during the study remained unchanged.

In this small group of seventeen patients, 11 showed a moderate to marked improvement following nortriptyline, including six patients with anxiety reaction, and five of the nine with a depressive reaction. One of the two patients diagnosed as anxiety-depressive reaction showed a slight improvement as did one of the depressed patients.

The analysis of symptomatic improvement revealed that of the 53 symptoms mentioned by this group of patients, 23 were either markedly or completely alleviated and in 24 there was some degree of beneficial change.

Side-effects were mentioned by six individuals. They consisted of epigastric distress (three), peculiar taste (two), constipation (one), and confusional state (one).

Of interest is the finding that in the nine patients refractory to previous therapy, four did show improvement, four had no change, and one was lost from the study.

One of the 13 patients who received both placebo and nortriptyline showed improvement with either medication. In four cases a carry-over effect or placebo effect was noted when improvement was maintained following the substitution of placebo for the active drug. Three patients suffered a prompt relapse, however, when placebo was substituted for nortriptyline. Of the remaining in the placebo study, four were unchanged with either medication and one was lost from the study.

In one case there was a confusional response which is of interest for it depicts the adrenergic activity of nortriptyline. This patient had received extensive psychotherapy several years ago but was still beset with marital problems and acting-out behavior. She reported her response to nortriptyline in the following communication:

"A few words about my new medicine. Shortly after taking the 4th capsule (10 mg.) I came to realize that I had swallowed a hurricane. I called you and you recommended one at bedtime. A storm raged at the base of my head, the lower third of my ears and the lobes throbbed with pain and hurt to touch. My thinking became confused. I thought surely you must hate me to give me a medication as violent as that. I cried a lot. I kept remembering you mentioned my seeing a psychiatrist. I told my husband I would *never* see a psychiatrist or for that matter you either. I ate everything I could get my hands on. The next three days, if I wasn't eating or crying, I was sleeping. I felt so weak and didn't dress for three days. Needless to say, I didn't take anymore of the medicine. Finally I came out of it and on Saturday night resumed taking the medicine as you advised over the telephone—one at bedtime. I can

not believe that what I experienced was the desired effect—truly a shock treatment!

“With only one a day the effect is strong. As you said, ‘I know I have problems but they don’t bother me.’ I believe what I notice most is the absence of the ever present hunger for love I had. I know women who go from one illicit romance to another in an effort to satisfy the pangs of such a hunger. I’ve always known that such behavior would not solve my problems . . .

“You mentioned that I have considerable insight into my problems. I agree with you, however apparently that is not enough. With the medication I seem to be controlled. I can take more interest in what is happening. Now I do not feel the need to throw myself into burdensome activities in an effort to appease my insatiable hunger. I feel a concern for those I should be concerned about. I look at the tired lines in my husband’s face. They are lines of sadness, not of hate. I marvel that he can still claim that he loves me.”

This case possibly represents a hysterical reaction or character disorder rather than a typical depression. The question of the extent played by nortriptyline in bringing to the surface such a response is an interesting one. While this individual might have shown a propensity for such an acting-out process, this had not occurred before to such a degree under analytic therapy or with previous medications. It would appear that nortriptyline’s producing a severe emotional storm succeeded in “stirring up” this patient with the development of insight into her relationships to self and others as described in her communication. Undoubtedly the reassurance given to the patient at the time of the episode and the supportive psychotherapy given during office visits played a role in the continuation of this change in her personality.

Summary

Seventeen patients having anxiety and/or depression associated with various secondary symptoms received nortriptyline for one to four months. Placebo medication was administered to 13 of these in a uni-blind fashion. In this group, one improved equally well with either medication and

in four improvement was maintained when placebo was substituted for the active drug, indicating either a carry-over of the drug effect or a similar effect with the placebo. In three there was a prompt relapse when placebo was thus substituted. Beneficial response was noted in 13. Side-effects were easily controlled by adjustment of dosage. One unusual case is cited in detail to illustrate the possible advantage of combining nortriptyline with psychotherapy to accelerate therapy. Nortriptyline was shown to be a safe and effective medication for anxiety and/or depression. It deserves further trial in the treatment of these reactions.

205 Walnut Ave.

Presenting Symptoms and Clinical Response

	Complete	Marked	Slight	None	Total
Depression	2	3	3	3	11
Anxiety	3	4	2		9
Hostility	1	2	1		4
Appetite Loss	2		3	1	6
Headache			1		1
Insomnia	2	1	3	3	9
Tension		3	3	1	7
Restlessness			2		2
Irritability		1	2	1	4
	10	14	20	9	53

Catron, pheniprazine, Lakeside Laboratories
Elavil, amitriptyline, Merck Sharp & Dohme
Eutonyl, pargyline, Abbott
Marplan, isocarboxazid, Roche
Marsilid, ipromazid, Roche
Monase, etryptamine, Upjohn
Nardil, phenelzine, Warner-Chilcott
Niamid, nialamide, Pfizer
Parnate, tranlycypromine, Smith Kline & French
Tofranil, imipramine, Geigy

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Threaded Pins For Tibial Plateau Fractures*

W. COMPERE BASOM, M.D., and LOUIS W. BRECK, M.D., *El Paso*

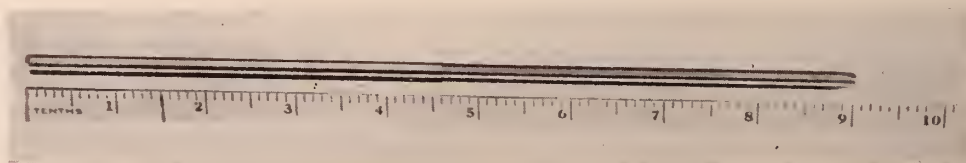
Tibial bolts will maintain certain tibial plateau fractures very effectively following reduction; however, two incisions are required. In certain instances, the posterior incision can be quite complicated.

Therefore, half-threaded pins $\frac{3}{16}$ ths of an inch in diameter and nine inches long with diamond point drill on the threaded end have been utilized for tibial plateau fractures. The advantage is that the pin can be drilled into position through the same incision used for the open reduction. No

second incision is required. After the fracture has been fixed an x-ray film can be exposed. The pin can then be adjusted if necessary and cut off.

Three cases have been treated effectively with these fixation pins. The reduction has been maintained satisfactorily.

The patient, whose x-rays are used as illustrations in this paper, has an excellent result over a three year period of follow up.



1. *Illustration: The pin showing that half of the pin has fine threads. There is a diamond point drill on the threaded end. The pin is 9 inches long and $\frac{3}{16}$ th of an inch in diameter. They are made by Richards Manufacturing Company.*



2. *Illustration: Extremely comminuted fracture of the upper tibia with marked displacement of fractures and torn lateral meniscus found to be displaced into the tibial fracture site.*

*Presented at the Orthopaedic Conference, Hotel Dieu Sisters' Hospital, Orthopaedic Residency Program.



3. Illustration: X-ray check-up of fracture showing three half-threaded pins in position. One pin was re-adjusted, then all pins were cut off just a little beyond the bone.



4. Illustration: Fracture well healed with a very satisfactory result.

Dr. R. C. Combs To Speak on Hypertension

Dr. Robert C. Combs, Assistant Clinical Professor of Surgery at the School of Medicine, University of California, San Francisco Medical Center, will be a member of the Faculty at the 46th annual meeting of the Southwestern Medical Association in Las Vegas, Nevada, October 22-24, 1964.

Dr. Combs is Commanding Officer of the 146th Evacuation Hospital of the California National Guard, which participated in Operation Desert Strike in the Mojave Desert in May this year.

He will speak at the Association meeting October 23, when the topic for the day will be "The Hypertensive Patient". His subject will be "Surgical Considerations in Hypertension". He will also appear on a Panel and Open Forum on "Therapy of Hypertension", in which Chauncey D. Leake, Ph.D., one of the nation's outstanding Pharmacologists, will be a participant.

Faculty for the meeting will come from the School of Medicine, University of California, San Francisco Medical Center, through arrangements made with Dr. Piero Mustacchi, Acting Head of Continuing Education in Medicine for the School, by Dr. Frank A. Shallenberger, Tucson, Southwestern Medical Association president. The other two general topics for the meeting will be "Systemic and Local Aspects of Urolithiasis", to be discussed on the 22nd, and "Diabetes and Renal Disease", scheduled for the 24th. The meeting will be an open one and its headquarters will be at the Flamingo Hotel.



Dr. Combs is a member of the State Board of Medical Examiners in California. He was one of six U. S. physicians who spent a month visiting medical schools and other medical institutions of Germany as a guest of the West German government several years ago. He has been a Delegate to the AMA and the California Medical Association.

A graduate of the University of California at Berkeley in 1934 and the University of California Medical School of San Francisco in 1939, he interned and underwent surgical training at the medical school's facilities. He is certified by the American Board of Surgery and a Member of the American College of Surgeons and the San Francisco Surgical Society. He was President of the San Francisco Medical Society in 1958.

Reducing Stricture Rate

Specialists from the University of Rochester School of Medicine and Dentistry told the recent annual meeting of the American Broncho-Esophagological Association that a three-fold approach using steroids, antibiotics and early esophagoscopy make an effective team in treating patients who have swallowed lye or other common household caustics. The stricture rate can be reduced to 3 to 5 per cent as compared to 40 to 80 per cent

with older techniques, according to Dr. C. T. Yarrington and Dr. Clyde A. Heatly.

The Rochester group has treated 70 patients over a two-year period by first assuring an adequate airway, then using neutralizing agents.

The group suggested that, while effective treatment is important, the risks would be lessened if packages for caustics were less attractive to small children.

COMING MEETINGS

New Mexico Chapter, American Academy of General Practice, Summer Clinic, Ruidoso, N. M., July 20-23, 1964.

Annual Meeting of the American Fracture Association, Philadelphia, Oct. 4-8, 1964.

Western Association of Railway Surgeons, Annual Meeting, Sun Valley, Idaho, Oct. 7-11, 1964.

Annual Meeting of the Arizona Academy of General Practice, Francisco Grande Motor Inn, Casa Grande, Ariz., Oct. 8-10, 1964.

Southwestern Medical Association, 46th Annual Meeting, Flamingo Hotel, Las Vegas, Nev., Oct. 22-24, 1964.

Southwest Obstetrical and Gynecological Society, Annual Meeting, El Paso, Oct. 29-31, 1964.

Seventh Interim Session, House of Delegates, New Mexico Medical Society, Los Alamos, Nov. 20-21, 1964.

District One, Texas Medical Association, Pecos, Texas, Feb. 6, with Post-Graduate Course, Feb. 7, 1965.

83rd Annual Meeting of the New Mexico Medical Society and 12th Biennial Meeting of the Rocky Mountain Medical Conference, La Fonda, Santa Fe, May 9-15, 1965.

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August, 1964

VOL. 45. NO. 8



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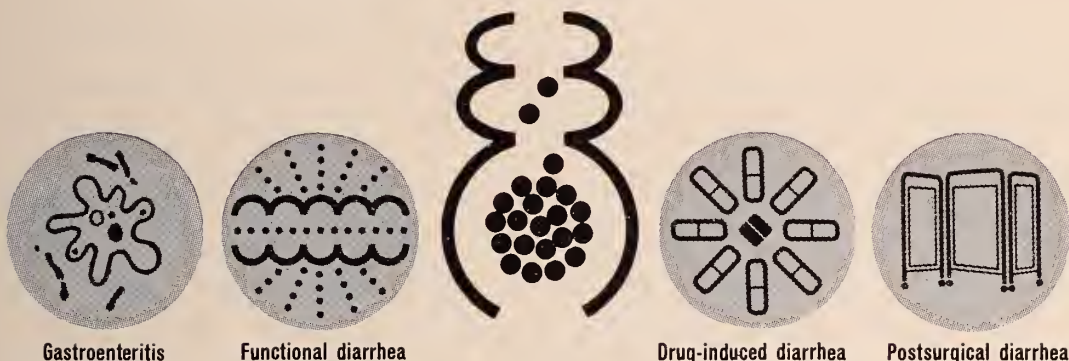
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western New Mexico Medical Society, and
El Paso County Medical Society

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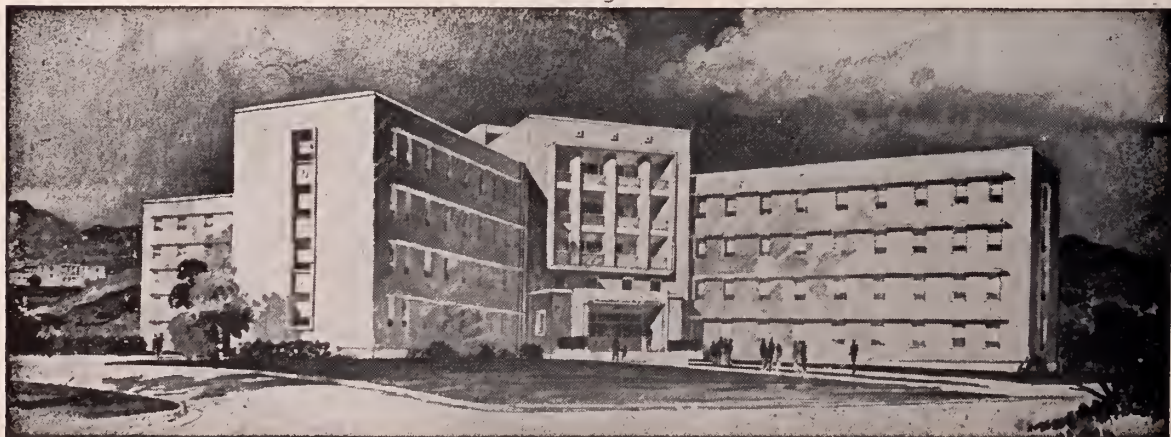
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Coming Meetings

N. M.—El Paso Chapter, American College of Surgeons, Chaparral Motel, Ruidoso, N. M., Sept. 11-13, 1964.

94th Annual Session of the Colorado Medical Society, Broadmoor Hotel, Colorado Springs, Sept. 16-19, 1964.

Flying Physicians Association, Riviera Hotel, Palm Springs, Calif., Sept. 27-Oct. 2, 1964.

Fourth Annual N. M. Psychiatric Seminar for Non-Psychiatric Physicians, Clovis, N. M., Oct. 1-3, 1964.

Annual Meeting of the American Fracture Association, Philadelphia, Oct. 4-8, 1964.

Western Association of Railway Surgeons, Annual Meeting, Sun Valley, Idaho, Oct. 7-11, 1964.

Annual Meeting of the Arizona Academy of General Practice, Francisco Grande Motor Inn, Casa Grande, Ariz., Oct. 8-10, 1964.

Southwestern Medical Association, 46th Annual Meeting, Flamingo Hotel, Las Vegas, Nev., Oct. 22-24, 1964.

Southwest Obstetrical and Gynecological Society, Annual Meeting, El Paso, Oct. 29-31, 1964.

Seventh Interim Session, House of Delegates, New Mexico Medical Society, Los Alamos, Nov. 20-21, 1964.

Ninth Annual Meeting of the Medical Society of the United States and Mexico, Mountain Shadows, Phoenix, Ariz., Dec. 9-12, 1964.

District One, Texas Medical Association, Pecos, Texas, Feb. 6, with Post-Graduate Course, Feb. 7, 1965.

83rd Annual Meeting of the New Mexico Medical Society and 12th Biennial Meeting of the Rocky Mountain Medical Conference, La Fonda, Santa Fe, May 9-15, 1965.



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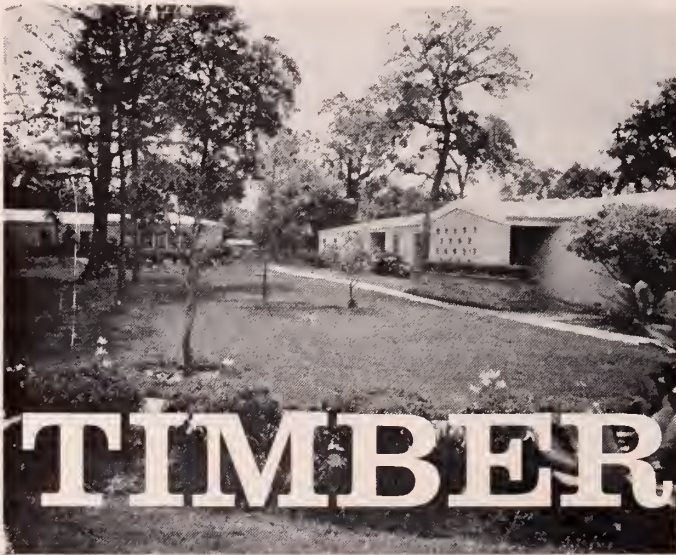


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SW OB & Gyn Society

14th Annual Meeting

October 29-31, 1964

The Southwest Obstetrical and Gynecological Society will hold its 14th annual meeting in El Paso, October 29-31, 1964, and the following speakers have been announced by Dr. Jesson L. Stowe, El Paso, President of the Society:

Dr. Ralph A. Reis, Professor of Obstetrics and Gynecology at Northwestern University Medical School and Editor of "Obstetrics and Gynecology," the Journal of the American College of Obstetricians and Gynecologists; Dr. Edward T. Tyler, Los Angeles, Associate Clinical Professor of Obstetrics and Gynecology at the University of California at Los Angeles School of Medicine;

Dr. Frank E. Whitacre, Nashville, Professor of Obstetrics and Gynecology at the Vanderbilt University School of Medicine; and Philip R. Overton, Austin, General Counsel for 25 years for the Texas Medical Association, the Texas Hospital Association and Blue Cross and Blue Shield of Texas.

Headquarters for the meeting will be at the Sheraton - El Paso Motor Inn. Dr. Celso C. Stapp, a Past President of the Society, is general chairman.

Dr. Reis, who for nine years has been a popular participant on the Society's scientific program,

Dr. Whitacre



Dr. Overton



will speak on "An Editor Looks at Medical Manuscripts."

Dr. Tyler, who is director of the Tyler Clinic in Los Angeles, is also Associate Clinical Professor of Medicine and Research Associate in the Division of Urology at the medical school. He is chairman of the Postgraduate Extension Infertility courses at the U.C.L.A. Medical Center and in 1963 was President of the American Association of Planned Parenthood Physicians. An authority in the field of Infertility and Endocrinology, he is the author of "Sterility: Office Management of the Infertile Couple," "The Problem of Childless Couples" and "New Hope for the Childless." In 1958 he was guest lecturer on Endocrine and Related Problems at major medical centers of Japan. He has appeared on the Jack Parr, Medic, NBC Spectacular and other television shows and for 16 years was a professional television writer for the Groucho Marx Show.

Dr. Tyler will speak on "Current Research in Contraceptive Methods," "Treatment of Ovulatory Failure" and "Artificial Insemination."

Dr. Whitacre has been an Examiner of the American Board of Obstetrics and Gynecology for 19 years and was awarded the Distinguished Service Award of the University of Chicago in 1952. He has been Assistant Professor of the Department of Obstetrics and Gynecology at the University of Chicago, Assistant to Dr. Hugo Sellheim at the University of Leipzig Womens Hospital, Assistant to Dr. Robert Meyer in Gynecologic Pathology at the University of Berlin, and Professor and Head of the Department of Obstetrics and Gynecology at the Rockefeller Foundation Medical

Center in Peking, China. The last assignment led to his involvement in World War II and he was imprisoned by the Japanese in Manila for a two-year period. In 1944 he became an Associate in Obstetrics and Gynecology at the University of Tennessee, and then was at Vanderbilt University Hospital. He is the author of numerous scientific articles. He has been Head of the Department of Obstetrics and Gynecology at the Nashville Metropolitan General Hospital since mid-1960.

He will speak on "Manipulative and Operative Obstetrics," "Toxemia of Pregnancy," and "Third Trimester Bleeding."

Mr. Overton is the son of Dr. M. C. Overton, who died several years ago and who was one of the pioneer doctors in Lubbock, Texas. His brother, Dr. M. C. Overton, Jr., is a practicing physician and surgeon at Pampa, Texas, and his son, Dr. Phil M. Overton, is an orthopaedic surgeon in Austin.

The program for wives at the meeting offers sightseeing in Juarez, Mexico, including a glass factory, where artists from Mexico City practice the ancient art of glass blowing, the country club area of elaborate homes, the old market place, the new \$5 million greyhound track, and a bullfight. Other activities include a trip to Sunland Park for horse-racing, bridge, golf, a ride on the aerial tramway to the top of the Franklin Mountains, and a visit to Old Mesilla near Las Cruces, N. M. A luncheon has been arranged for October 29 at the Coronado Country Club high in a mountain setting, and a style show with resort wear-ski clothes will be a luncheon feature.

Speaker Announced For Southwestern Meeting



Dr. Felix O. Kolb

Dr. Felix O. Kolb, Associate Clinical Professor of Medicine, Associate Research Physician, and Assistant Director of the Metabolic Research Unit of the School of Medicine at the University of California, San Francisco Medical Center, will be a member of the Faculty at the 46th annual meeting of the Southwestern Medical Association in Las Vegas, Nevada, October 22-24, 1964.

Others who have been announced as members of the Faculty for the Southwestern meeting are Chauncey D. Leake, Ph.D., and Dr. Robert C. Combs, both of the School of Medicine, University of California, San Francisco Medical Center, which is supplying the Faculty. Dr. Leake is Senior Lecturer in Medical History and Pharmacology, and Dr. Combs is Assistant Clinical Professor of Surgery at the School. Dr. Leake will speak at a luncheon on "The Treatment of Anxiety."

Born in Vienna, Dr. Kolb was graduated from the University of California at Berkeley and from the Medical School of the University of California at San Francisco. He interned at the San Francisco Hospital and took residencies at the New England Center Hospital in Boston and the U. C. Medical Service of the Veterans Administration in San Francisco.

Dr. Kolb will speak on "An Endocrinologist Looks at Renal Stones," "Renal and Electrolyte Aspects, The Hypertensive Patient," and participate in panels on "Problems in Calcium Metabolism" and "Therapy of Hypertension."

Dr. Frank A. Shallenberger, Tucson, Southwestern president, has announced that an entertainment feature at the Flamingo Hotel, headquarters for the meeting, will be Robert Goulet, popular vocalist and former star of "Camelot".

Chorioepithelioma in a Fifteen-Year-Old Male

JIM BRAME, M.D., *Pasadena, Texas*

Chorioepithelioma is a rare tumor in the female and its incidence in the male is reported only infrequently in the literature. Hartz and Ramirez reported 143 cases to 1938 associated with teratoma of the testes.¹ A study covering the period of 1930 through 1950 in one hospital revealed three such cases, all fatal.¹ A review from 1910 to 1946 showed a collection of seven cases of chorioepithelioma in 127 cases of teratoma or adenocarcinoma of the testes.²

The purpose of the communication is to report a case of chorioepithelioma proven by pulmonary biopsy in a 15-year-old male.

Clinical Record

The patient, a 15-year-old Latin-American male, very active in high school athletics, was referred to the hospital following one episode of minimal hemoptysis. He stated that there had been a weight loss of approximately 12 pounds over the previous two-week period, but his appetite had remained the same. He noted that there had been small amounts of clear liquid exuding from both breasts which had enlarged over the previous four or five months. The patient had been shaving for the past six months, denied any hair loss, but had been aware of a decrease in libido in the past month.

Physical examination revealed a somewhat thin, white male with normal vital signs and oral temperature of 99.6. There was a papular-pustular rash over the anterior surface of the chest; bilateral breast enlargement; multiple, small, freely moveable, nodes in the neck, axillary and inguinal areas. The lungs were normal to physical examination. There was a Grade II pan-systolic, ejection-type murmur over the pulmonic area of the

heart. The testes were normal and equal in size. The prostate was questionably enlarged, but was of normal consistency and revealed no nodularity. The neurological examination was considered within physiologic limits.

Clinical Record: Hospital No. 51979

Admission chemistry abnormalities included a 1+ urinary albumin; white blood cell count of 11,900, with 82 neutrophils, three bands, 13 lymphocytes, two monocytes, a hematocrit of 36 vol. %, and a hemoglobin of 12 gms. BUN, potassium, sodium, total protein, A/G ratio, alkaline phosphatase, direct and indirect bilirubin, and thymol turbidities were within normal limits. A lumbar puncture revealed normal pressure and spinal fluid. Spinal fluid and three sputum examinations were negative for acid fast organisms and fungus. PPD, histoplasmosis, coccidioidomycosis and blastomycosis skin tests were negative. The serology was negative.

There was a normal serum electrophoresis, 17 urinary ketosteroids was 4.8 mg. per day, 17 ketogenic steroids 3.8 mg. per day. Ortho pregnancy tests were positive on three separate days.

Chest roentgenograms revealed many, one to four centimeter, nodular lesions scattered throughout both lung fields and a large hilar mass on the right (Fig. 1). An I.V.P. was considered within normal limits, and an inguinal node biopsy showed chronic inflammatory changes. On the seventh hospital day, a pulmonary biopsy revealed multiple 0.5 cm. to three cm. soft purple nodules elevated on the surface and scattered throughout the lung parenchyma. Two nodules were excised with the tip of the lingula. The microscopic appearance was typical of metastatic choriocarcinoma (Fig. 2).



Figure 1

Course in the Hospital

Until the time of the pulmonary biopsy the patient remained quite stable except for the occurrence of frequent frontal headaches. Two days following the pulmonary biopsy, it was noted that there was bilateral papilledema. The patient became progressively lethargic and finally comatose on the 14th hospital day. Therapy included 25 mg. of methotrexate, I.M., and irradiation to the whole brain. On the 11th hospital day a C.B.C. was taken and revealed a white blood cell count of 14,000, neutrophils 88, bands two, lymphs. 10 with a 19 vol. per cent hematocrit and 4.5 gm. hemoglobin. There was marked hypochromia and occasional polychromatophilia, with several target cells and macrocytes present. The platelets appeared adequate by smear throughout the hospital course. The patient was transfused with two units of packed red cells which increased the hemoglobin to 6.6 gms. and the hematocrit to 23 vol. per cent. The next day a rectal examination revealed a dark stool with flecks of blood. The patient began having grand mal seizures, interspersed with long periods of hyperventilation and tachycardia of 150. The seizures increased to about one every three hours and the patient expired the evening of the 14th hospital day. Permission for a post-mortem examination was denied.

Discussion of Case

The unrelenting downhill course appears typical.⁵ The lack of clinical response to the cytotoxic

agent corresponds to two cases reported earlier.¹ Little can be said as to the primary site of the tumor; however, the mediastinal mass as revealed by x-ray suggests a teratoma in this area. Though the testes were normal clinically, serial block sections would be necessary to positively exclude them as the primary site of the chorioepithelioma.⁶

With bilateral secretory gynecomastia, disappearance of libido and three positive tests for

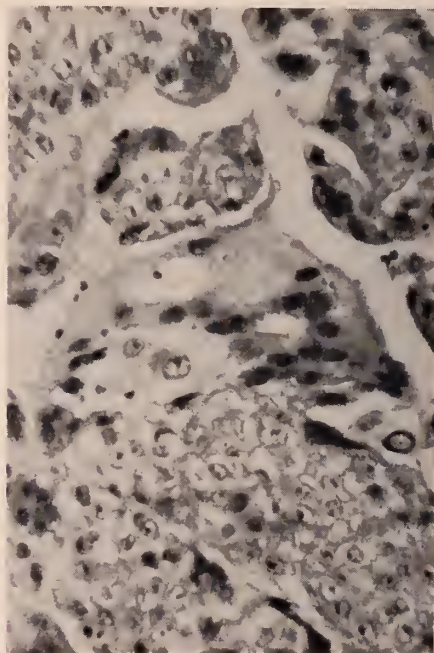


Figure 2

pregnancy, the most direct approach to the diagnosis was a lung biopsy. This also gave direction to therapy and prognosis.

Summary

A case of chorioepithelioma in a 15-year-old male is presented. Death occurred on the 14th hospital day, approximately three weeks from the onset of signs and symptoms. No clinical response was noted through the use of methotrexate. Pathological diagnosis was by pulmonary biopsy and no post mortem examination was completed.

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Extensive Muscular Hypertrophy of the Esophagus

C. HERBERT FREDELL, M.D.,* *Flagstaff*

A wide variety of esophageal pathology may cause the presenting complaint of dysphagia. The frequent causes such as carcinoma, achalasia, and esophagitis are initially considered and readily diagnosed by radiological examination and esophagoscopy.⁴ Some of the more unusual types of pathology present a greater diagnostic and therapeutic challenge to the surgeon.

An uncommon cause of inability to swallow liquids and solids, extensive muscular hypertrophy of the esophagus, was encountered and successfully treated by the author 14 months ago. The diagnosis and management of this problem is the subject of this report.

Report of a Case

A 45-year-old man was admitted to the Flagstaff Hospital on November 13, 1962, complaining of inability to swallow solid food and liquids for the preceding week. He noted several bouts of temporary difficulty in swallowing during the past year. It usually followed a bout of heavy alcoholic beverage ingestion.

He was an edentulous plethoric appearing man with no abnormalities of note upon physical examination. A barium swallow roentgen examination outlined an extraluminal filling defect at the level of the thoracic inlet. The barium was seen to flow into a narrowed esophageal lumen within the thorax. There was no peristaltic activity in that segment of the esophagus. The radiologist felt the most likely diagnosis to be a leiomyoma of the esophagus with esophagospasm distal to it.

Esophagoscopy was unsuccessfully attempted on November 15, 1962. An extraluminal obstruction of the esophagus at the thoracic inlet prevented passage of the instrument.

An exploratory thoractomy through the bed of the right seventh rib posteriorly was done on November 16, 1962. There was a firm enlarged esophagus with hypertrophied muscle fibers throughout most of the intrathoracic portion. There was a discrete margin of enlarged musculature two to three inches distal to the thoracic inlet. There was no intraluminal mass present. An esophagotomy was done at this point. The muscular wall measured one and one-half to two centimeters in thickness and appeared grossly to resemble the hypertrophied musculature of the pylorus in a hypertrophied pyloric stenosis.

No intra luminal obstruction was found when a large bougie was passed proximally and distally. A Foley bag urethral catheter was then inserted into the lumen and 10 cc. of saline was placed in the bag producing moderate tension in the esophageal wall. The catheter was then slowly advanced as the muscular fibers of the wall of the esophagus were divided longitudinally throughout the entire intrathoracic esophagus. The muscular fibers about the adjacent normal appearing esophagus and stomach were divided for a distance of one to two centimeters. Prior to the division of the musculature a biopsy of the esophageal wall was taken and examined by frozen section method by the pathologist. The biopsy specimen showed hypertrophy of the esophageal musculature with

*Chief of Surgery, Flagstaff Hospital, Flagstaff, Arizona.



Figure 1

Extensive Muscular Hypertrophy of the Esophagus

chronic inflammatory cells between the muscle bundles. There were ganglia present. (Figure 1).

The mucosal opening in the esophagus was closed with fine silk sutures and a graft of parietal pleura was sutured to the severed margins of the muscularis circumferentially about the mucosal wound.

The anesthetist then passed a large bougie from the oropharynx into the stomach with ease. The mucosa of the esophagus protruded into the defect created by the divided hypertrophied musculature. (Figure 2) The mediastinal pleura was not closed over the esophagus. Intercostal thoracostomy tubes were inserted and the wound was closed in the usual manner.

Postoperatively he did well. The lung tissue promptly expanded with a minimal amount of atelectasis and pleural fluid. He began taking oral fluids on the fifth postoperative day and rapidly progressed to solid foods without difficulty. He was discharged from the hospital on the tenth postoperative day.

Follow up examinations during the next 14 months have shown no regurgitation of liquids or

solids in the erect and supine position. A barium roentgen study of the esophagus demonstrated a normal peristaltic activity with a normal size lumen. He is currently doing construction work and eats all foods without complaint.

Comment

A case of a 45-year-old man with recurring bouts of dysphagia culminating in total obstruction of the esophagus has been presented. This was due to diffuse muscular hypertrophy of the esophageal musculature of the intrathoracic esophagus.

The preoperative diagnosis was not suspected to be what was found at the time of surgery. A biopsy and immediate microscopic examination of the involved esophagus confirmed the gross diagnosis made by the surgeon. The treatment of this case was an extensive esophagomyotomy. It was done uneventfully and produced a successful result.

Diffuse muscular hypertrophy involving the distal three-fourths of the esophagus is uncommon. Nardi² noted that he had known of only two similar cases seen at the Massachusetts General Hospital. One case was resected, thinking it was a malignancy, and the other case had a myotomy with good results. Sloper³ reviewed the literature and found 25 reported cases up to 1954 and added seven cases. He noted that prior to his report the disease had not been diagnosed in the living patient. He discussed the etiology of the condition and concluded that it was probably due to diffuse muscular spasm. He noted that the microscopic picture was that of circular muscular hypertrophy with lymphorrhages and normal ganglia.

Blank and Michael¹ reported a case of a 26-month-old infant with muscular hypertrophy of the entire esophagus that did not survive in 1963. They reviewed the literature on this subject briefly and noted the cause to be unknown. They noted speculation concerning etiology included an autonomic imbalance, irritation, infection, hypersensitivity, or even genetic mutation abnormality.

Wood⁵, in an earlier report, discussed the etiology of the abnormality and concluded that it was likely due to a completely compensated achalasia.

The problem of diffuse muscular hypertrophy of the esophagus is unusual but very important.

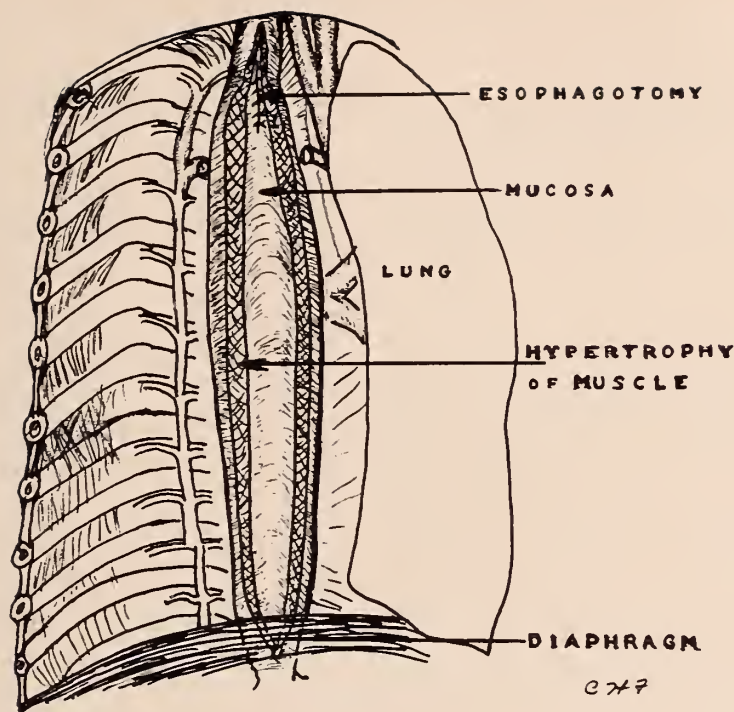


Figure 2
Extensive Muscular Hypertrophy of the Esophagus

The surgeon is faced with a diagnostic problem at the time of surgery when confronted with an enlarged firm esophagus. An extensive resection of the esophagus, thinking it was a malignancy, has been done for this lesion. It should not occur if the surgeon is alert to this condition and confirms his suspicions with a frozen section at the time of surgery.

If the frozen section biopsy specimen proves that there is no malignancy an extensive myotomy similar to the Heller procedure will effect a cure. If the esophagus has not been extensively dissected from the mediastinum and the blood supply is undisturbed the surgeon should not fear the long muscular wound with the protruding mucosa. The surgeon should be certain that he has divided all of the involved musculature. If the lumen is entered the mucosal laceration should be repaired with fine non-absorbable suture and reinforced with a pleural or pericardial graft.

Summary

1. A case of diffuse muscular hypertrophy of the distal three-fourths of the esophagus has been

presented. The exact diagnosis was not suspected until the esophagus was examined at the time of surgery. The diagnosis was confirmed by frozen section pathological examination of a biopsy of the involved esophageal wall. An extensive esophagomyotomy was successfully done with a good result.

2. This problem is very uncommon. It is of great importance to the surgeon who must decide at times whether an esophagectomy is indicated for malignancy. The surgeon should confirm his suspicions, by immediate frozen section pathological examination before proceeding with extensive resection procedures, if he suspects only muscular hypertrophy.

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Clinical Observations On Erythromycin* In The Management Of Common Respiratory Tract Infections

It is well known that infections of the respiratory tract are the most commonly encountered infections in both adults and children and that such infections are of the type most frequently seen by the general practitioner, the pediatrician, and specialists in ear, nose and throat conditions. If the infections are mild or transient, bed rest and general supportive measures may be all that is necessary for complete recovery. However, in the protracted, recurrent, and more serious infections, the use of antimicrobials is imperative for successful therapy.

Successful therapy of respiratory tract infections may be divided into specific, adjunctive and supportive measures. It is the opinion of the authors, and one which appears to be prevalent among most busy practitioners, that the practical evaluation of therapeutic efficacy is determined by the patient's clinical response to the antimicrobial agent employed. Therefore, specific measures are of the greatest importance and are dependent upon several factors which must be considered in gauging therapeutic response. These factors include the susceptibility of infecting organisms to the selected antibiotic, the receptivity and general health status of the patient, and the intensity and duration of therapy.

Since 80 to 85 per cent of the bacterial infections of the upper respiratory tract are caused by gram-positive organisms, the authors felt that erythromycin might well be the antibiotic of first choice in the treatment of such infections. Erythromycin has been reported by several investigators^{1,2,3} to provide greater antibacterial activity

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against these organisms (staphylococci, streptococci, and pneumococci) than does tetracycline or chloramphenicol. Also, erythromycin is considered to be among the safest of the commonly used antibiotics. The practical aspects of the foregoing statements are fully appreciated in a busy, private practice and were borne out in this study.

In the clinical evaluation of antimicrobial agents, great emphasis has been placed on the determination of serial blood levels, tissue concentrations and on culture and sensitivity studies. While not denying the importance of culture studies in identifying pathogenic organisms, conditions often necessitate the initiation of antibiotic therapy before culture studies have been performed or the results are available. Considering these factors, we have concluded that the efficacy and safety of erythromycin might well make it an ideal agent of choice in the treatment of common respiratory infections.

Procedure

A total of 148 patients ranging in age from two to 69 years were given Erythrocin® (erythromycin) orally for various infections of the upper and lower respiratory tracts. The usual dose for adults was one Gm. daily — one 250 mg. Erythrocin® (erythromycin stearate) Filmtab tablet every six hours. This was increased to two Gm. daily in a few patients who were more seriously ill. Children received an average daily dose of 14 mg./lb. of body weight in divided amounts of Erythrocin® (erythromycin ethyl succinate) Oral Suspension.

*Erythromycin used in this study was provided by Abbott Laboratories, North Chicago, Illinois, under their trade name Erythrocin® and in the forms of erythromycin stearate (Filmtab® tablets) and erythromycin ethyl succinate (oral suspension). Filmtab® is Abbott Laboratories' trade name for film-sealed tablets.

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Duration of therapy was from four to nine days. Most of the adults were seen as office patients while the majority of the pediatric patients were seen at home. Also, a few subjects in both age groups were hospitalized during therapy.

The following is a list of clinical infections which were diagnosed in this study and the number of patients treated in each category:

Diagnosis	Number of Patients
Upper Respiratory Tract Infections	32
Follicular Tonsillitis, acute	19
Pharyngitis, acute	16
Tracheo Bronchitis, acute	13
Bronchitis, acute	11
Asthma, Bronchial, with Infection	7
Sinusitis, acute	8
Sinusitis, chronic	12
Strep Throat, acute	9
Otitis Media, acute	9
Otitis Media, chronic	4
Nasal Infection	1
Bronchopneumonia	5
Lobar Pneumonia	2
Total	148

Clinical Response

Erythrocin (erythromycin) therapy was shown to be highly effective in the majority of patients treated in this study — including five patients with known hypersensitivity to penicillin. The clinical response in 148 patients is presented as follows:

Clinical Response	Number of Patients	Percent Response
Excellent (immediate improvement within 24 to 48 hours)	121	82
Good (clinically cured after three to six days)	18	12
Poor (did not respond to therapy)	9	6
Total	148	

It may be noted that 94 per cent of the patients observed in this study showed a clinical cure while on Erythrocin therapy and that 82 per cent demonstrated improvement within the first 24 to 48 hours. Only nine patients, or six per cent, failed to respond to therapy.

Side effects were observed in only nine patients and generally were of the nature of mild nausea or mild diarrhea. The antibiotic was withdrawn in only one patient due to rather severe diarrhea.

The patient, otherwise, was improving from the infection that was being treated.

Discussion

No attempt was made to screen the patients who were drawn from the clinical practices of the authors for this study. Nose and throat cultures were performed on 13 patients. Clinical signs and symptoms included fever, cough, sore throat, ear complaints and general malaise. Others, while afebrile, also had edema, erythema and adenitis. The dosage schedule employed was dependent upon the severity of the infection as well as the clinical judgment of the authors — based on previous experience.

Case Histories

Case 1

A 41-year-old female had a three-day history of chills, fever and malaise. She was hospitalized and roentgenograms revealed consolidation of left lung base. Culture studies demonstrated the growth of pneumococci. The patient was placed on Erythrocin therapy (one 250 mg. Erythrocin stearate tablet every six hours). Thirty-six hours after the beginning of therapy the fever dropped to 100 degrees. A repeat X-ray taken after eight days of therapy showed complete resolution.

Case 2

A 55-year-old male was admitted to the hospital with a history of fever, cough and sore throat. Physical examination revealed bronchopneumonia, which was confirmed by X-ray examination. The patient was started on two 250 mg. Erythrocin tablets. He responded well to the medication and showed improvement within four days.

Case 3

A 28-year-old female suffered from a recurrent sore throat (penicillin failure). Examination revealed acute pharyngitis with adenitis and cough. Treatment was successful with Erythrocin; there was no recurrence of symptoms.

Case 4

A 20-year-old female was seen with fever and purulent nasal discharge. Culture studies revealed hemolytic Staph aureus and alpha streptococci.

Symptoms cleared after six days of therapy with Erythrocin.

Case 5

A 19-year-old female was observed with an upper respiratory tract infection and acute sinusitis. Symptoms included a temperature of 101.6 degrees, cough, sore throat and purulent discharge from the right antrum. *Staphylococcus albus* was isolated from the nasopharynx. The patient was afebrile on the fourth day of Erythrocin therapy and fully recovered by the eighth day.

Case 6

A 14-year-old female was diagnosed as having an upper respiratory tract infection. Symptoms included dry cough, sore throat, tender glands and fever of 101 degrees. Erythrocin therapy was followed by recovery in four days.

Case 7

A 39-year-old male was observed who complained of sore throat and painful deglutition. Examination revealed toxicity with ulceration of the pharyngeal wall, adenitis, and 102 degrees temperature. Culture studies revealed *Staphylococcus aureus*. The patient was given Erythrocin (250 mg. tablet) every six hours. Subjective improvement was reported by the patient on the third day of therapy although fever continued as well as other objective signs of infection. Dosage was increased to two grams daily with marked improvement and subsequent clinical recovery on the ninth day.

Case 8

A 47-year-old male with an eight-year history of chronic asthma was examined for infection following a cold. Symptoms included fever (101.6 degrees), chills, and wheezing. The infection was brought under control with Erythrocin therapy and recovery was noted by the sixth day. Organisms isolated from the naso-pharynx were *Neisseria catarrhalis* and *Staphylococcus albus*.

Case 9

An eight-year-old child was seen with acute tonsillitis. Symptoms included sore throat, fever and adenitis. A full recovery was obtained in five days from Erythrocin therapy.

Case 10

A six-year-old boy was diagnosed as having acute otitis media. His condition included severe earache, inflamed tympanic membrane and 102 degrees temperature. Improvement was immediate with Erythrocin therapy — complete recovery in five days.

Summary and Conclusions

The efficacy and safety of erythromycin therapy was observed in 148 patients suffering from various infections of the upper and lower respiratory tracts.

Excellent results were obtained in 121 patients who showed immediate improvement within 24 to 48 hours.

Good results (clinically cured after three to six days) were obtained in 18 patients. Thus, 94 per cent of patients showed clinical cures from Erythrocin therapy.

Only nine patients failed to respond to the indicated course of therapy, representing six per cent of the patients observed.

Untoward reactions were minimal and generally mild — occurring in only nine patients of the total 148 patients observed. The drug was withdrawn in one patient with severe diarrhea; although, the patient was responding to the antibiotic therapy.

On the basis of the data obtained in this study and other previous clinical experiences, it is our belief that Erythrocin (erythromycin) is an extremely effective and safe antibiotic in the treatment of infections commonly seen by the practicing physician.

References

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3. Jones, W. F., Jr., and Finland, M., Susceptibility of Pneumococci to Eleven Antibiotics In Vitro, Am. J. M. Sc., 233:312, March 1957.

Rules for Guy Rader Awards

The New Mexico Medical Society is offering the second annual Guy Rader Awards for excellent reporting in the field of health. The awards will be presented at the annual meeting of the New Mexico Press Association in 1965.

A prize of \$100 with a certificate will go to the first place winner in each of two classifications: 1. Daily newspapers and wire services in N. M.; 2. Weekly, semi-weekly and bi-weekly newspapers in N. M.

There is no limit to the number of reporters who may enter from a single publication. A single news story, feature, column, or a collection of articles may be entered. The awards are for quality of reporting rather than volume.

Entries submitted must have been published between Oct. 18, 1963, and Oct. 1, 1964. They should be delivered to the secretary of the nearest county medical society, which must forward entries to headquarters of the New Mexico Medical Society in Albuquerque, postmarked not later than Oct. 15, 1964.

The award has been named in memory of Guy Eugene Rader, M.D., who was born in Parkersburg,

W. Va., Jan. 26, 1920, and died in Albuquerque, Oct. 9, 1961. At the time of his death he was president of the Bernalillo County Medical Association. A graduate of Albuquerque High School, he received his B.A. and M.D. degrees from Ohio State University. He interned in Los Angeles County General Hospital, served in the Army Medical Corps for two years and then returned to the Los Angeles County General Hospital for a two-year residency in pediatrics. He opened an office in August, 1949, in Albuquerque for the practice of pediatrics. He was a member of the American Academy of Pediatrics, and had been chief-of-staff of St. Joseph's Hospital in Albuquerque, chairman of the New Mexico Medical Society's legislative committee and orientation committee, a member of the Society's council, and a member of the Society's grievance committee. He participated in a wide variety of community activities, too numerous to mention, purely because he enjoyed doing things for other people. Dr. Rader took great interest in the quality of medical information published. He had the knack of cutting through a maze of conflicting information and opinions to the essence of a matter in a few well-chosen words.



\$1000 AWARD—Dr. William C. Baumann, on the Biggs Air Force Base medical staff for the last two years, center, receives a \$1000 Mead Johnson award for graduate training in general practice at a recent meeting of the El Paso County Medical Society from Dr. A. Robert Nering, El Paso director of the Texas Academy of General Practice, left, while Dr. Robert F. Boverie, president-elect of the El Paso society, looks on. Selection of Dr. Baumann was made by the Mead Johnson Awards Committee of the American Academy of General Practice. Dr. Baumann started his general practice residency training at Akron City Hospital in Akron, Ohio, in July. He intends to begin the general practice of medicine in Iowa. The award is one of 20 made this year. The program for assisting medical graduates in completing a general practice residency was begun in 1952 by the AAGP through funds provided by Mead Johnson & Co.

Drug Extracts Against Cancer

Will one of the many plant extracts under study by University of Arizona pharmacy researchers prove effective and safe as a drug against cancer?

"No one knows at present, but progress in the UA work to find the answer is encouraging," said Dr. Willis R. Brewer, dean of the U of A College of Pharmacy.

The UA program involves field collection of seed bearing type plants in southwestern U.S. and Mexican areas, extraction of their antitumor agents

for testing at the Cancer Chemotherapy National Service Center in Bethesda, Md., and chemical analytical studies on the promising returned extracts.

Brewer said that of the 4,275 UA extracts submitted the Bethesda center "has confirmed 60 plants and 69 extracts as active against tumors." He explained that the extracts are screened at the center "against nine different tumor systems in mice, hamsters, or tissue cultures." He said the

confirmed extracts represent 52 plants from Arizona, 16 from Mexico, and one from Texas. Robert J. Barr, UA research associate, conducts the field work for the project.

Chemical analytical studies on the confirmed active extracts which are returned from Bethesda show "eight extracts ready for crystallization and 16 approaching final stage chemical fractionation." These materials will be sent back to the national center for more advanced testing and evaluation.

Brewer said programs similar to the UA work, involving plants from worldwide areas, are being conducted by research groups in Wisconsin and North Carolina. He pointed out toxic side effects of the plant extracts as a major obstacle in the work. "It is hoped the cooperative work with the Bethesda center on such a wide variety of plant extracts will eventually supply an extract which may be safe as well as effective against cancer," he said.

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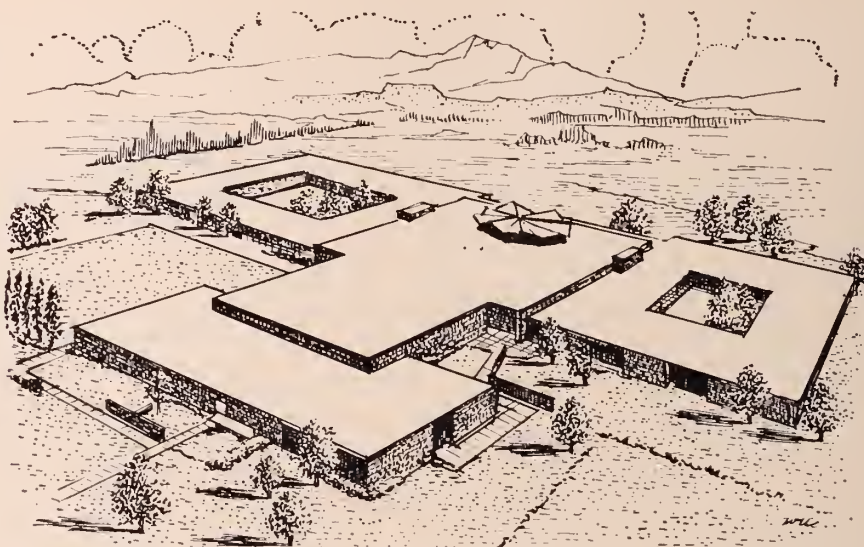


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Complete Program on Page 272

September, 1964

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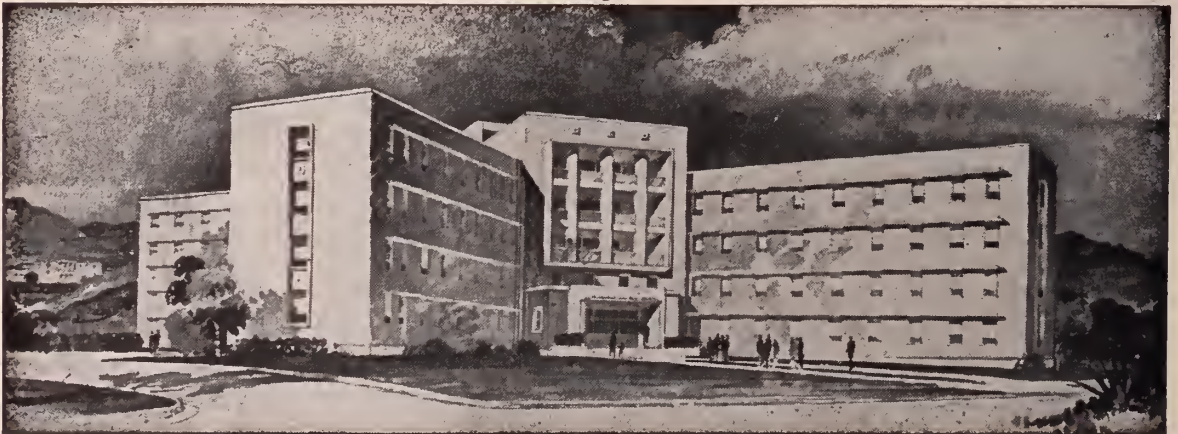
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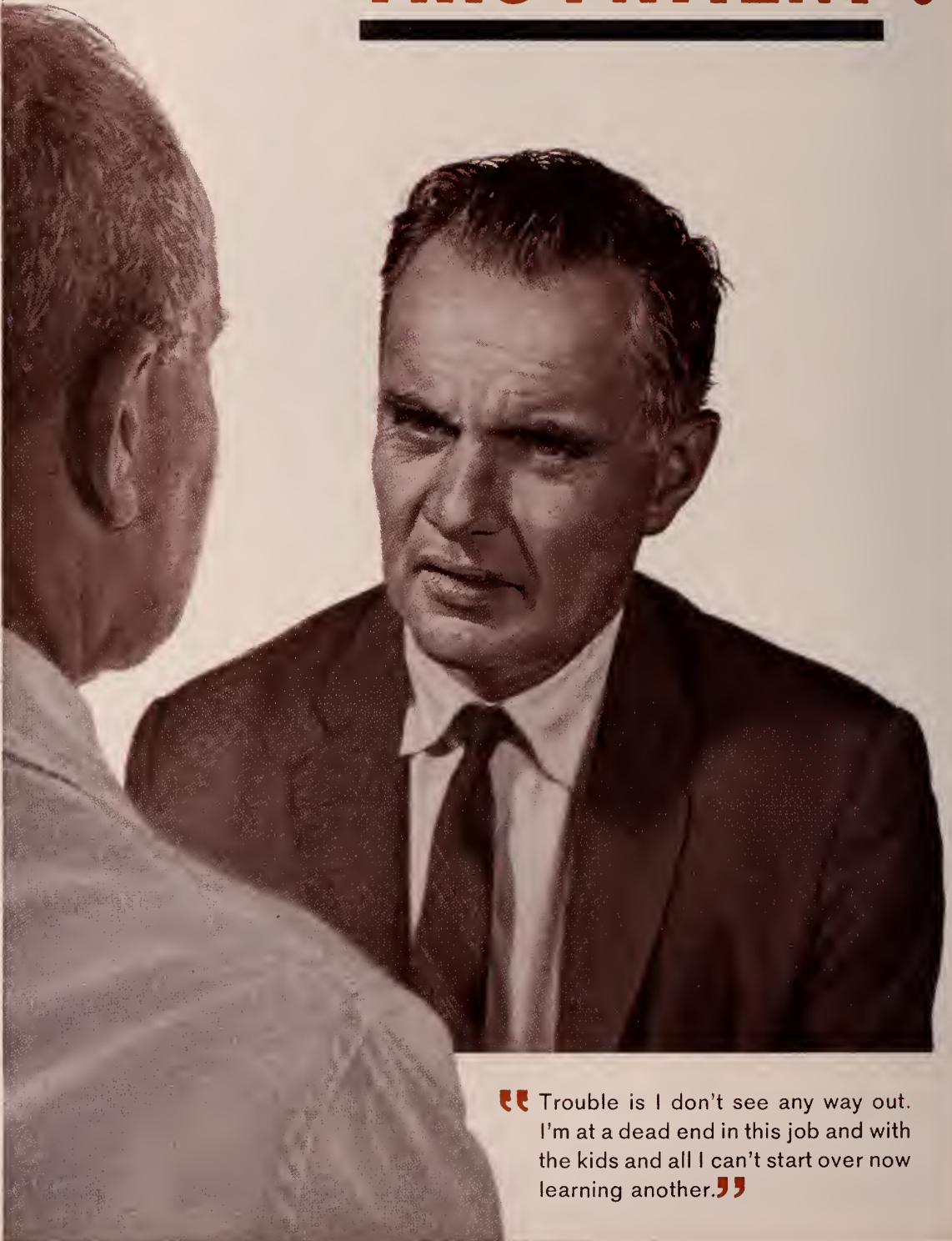
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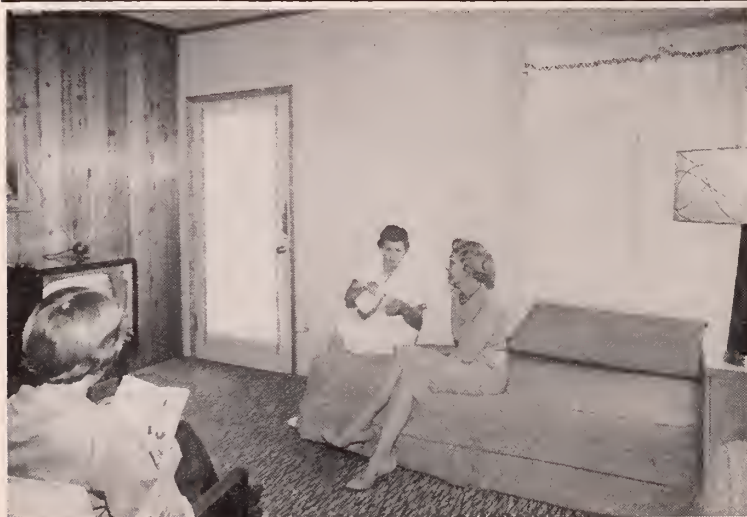


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Southwestern Medical Association To Meet in Las Vegas, Nevada October 22-24

The 46th annual meeting of the Southwestern Medical Association will be held in Las Vegas, Nevada, October 22-24, 1964, with members of the Faculty at the meeting to be provided by the School of Medicine, University of California, San Francisco Medical Center, through courtesy of Continuing Education in Medicine and Health Sciences.

Members of the Faculty are as follows:

Robert C. Combs, M.D., Assistant Clinical Professor of Surgery.

James S. Elliot, M.D., Assistant Clinical Professor of Urology.

Leon Goldman, M.D., Professor of Surgery.

Frank A. Gotch, M.D., Assistant Clinical Professor of Medicine.

Felix O. Kolb, M.D., Associate Clinical Professor of Medicine and Assistant Director, Metabolic Research Unit.

Chauncey D. Leake, Ph.D., Senior Lecturer in Medical History and Pharmacology.

Mary B. Olney, M.D., Clinical Professor of Pediatrics.

Headquarters for the meeting, which will be open to all physicians, will be at the Flamingo Hotel. There will be morning sessions only. Registration is \$25.

A feature of the meeting will be a luncheon on the 23rd, when Dr. Leake will talk on "The Treatment of Anxiety."

Dr. Piero Mustacchi, Acting Head of Continuing Education in Medicine for the School of Medi-

cine, has arranged for three general topics, one for each day of the convention. They are "Systemic and Local Aspects of Urolithiasis," "The Hypertensive Patient," and "Diabetes and Renal Disease."

The following subjects have been selected for the Panel and Open Forum, to be held on each of the three days: "Problems in Calcium Metabolism," "Therapy of Hypertension," and "The Child with Renal Disease."

The annual dinner will be held at 7 p.m. on the 22nd in the Flamingo Room of the Flamingo Hotel, where Robert Goulet, popular vocalist and former star of "Camelot", will be singing. Harry James and his orchestra is scheduled to open in the Flamingo that night. The golf tournament is scheduled for the afternoon of the 22nd, and the annual business meeting for 12:30 p.m. on the 24th.

Officers of the Association are Dr. Frank A. Shallenberger, Jr., Tucson, President; Dr. Clement C. Boehler, El Paso, President-Elect; Dr. W. G. Morrow, Jr., El Paso, Vice-President; and Dr. Zigmund W. Kosicki, El Paso, Secretary-Treasurer. Members of the Executive Committee are Drs. Shallenberger, Boehler, Morrow, and Kosicki and Dr. M. D. Thomas, Dr. H. P. Borgeson, Alamogordo, N. M., Dr. Louis W. Breck, El Paso, Dr. Homero Galindo, Juarez, Mexico, Dr. Louis G. Jekel, Phoenix, Dr. Frank A. Rowe, Albuquerque, and Dr. Frederico Sotelo, Hermosillo, Mexico.

Dr. Kosicki is general chairman for the meeting and Dr. Boehler, program chairman.

Program		11:20-11:30	Intermission—Exhibits
October 22	Systemic and Local Aspects of Urolithiasis	11:30-12:30	Panel and Open Forum: Therapy of Hypertension Moderator: Chauncey D. Leake, Ph.D., Robert C. Combs, M.D., Frank A. Gotch, M.D., Felix O. Kolb, M.D.
9:30-10:00	An Endocrinologist Looks at Renal Stones, Felix O. Kolb, M.D.		
10:00-10:30	The Realistic Management of Urolithiasis, James S. Elliot, M.D.	1:00	Luncheon Speaker: Chauncey D. Leake, Ph.D., The Treatment of Anxiety
10:30-10:50	Recess—Exhibits		
10:50-11:20	The Surgical Approach to Parathyroid Disease, Leon Goldman, M.D.		
11:20-11:30	Intermission—Exhibits	October 24	Diabetes and Renal Disease
11:30-12:30	Panel and Open Forum: Problems in Calcium Metabolism Moderator: Robert C. Combs, M.D., Leon Goldman, M.D., Felix O. Kolb, M.D.	9:30-10:00	The Future of the Diabetic Child, Mary B. Olney, M.D.
2:00 p.m.	Golf Tournament	10:00-10:30	The Complications of Diabetes, Frank A. Gotch, M.D.
7:00 p.m.	Annual dinner, Flamingo Room, Flamingo Hotel	10:30-10:50	Recess—Exhibits
		10:50-11:20	New Developments in the Treatment of Urinary Infection, James S. Elliot, M.D.
October 23	The Hypertensive Patient	11:20-11:30	Intermission—Exhibits
9:30-10:00	Renal and Electrolyte Aspects, Frank A. Gotch, M.D.	11:30-12:30	Panel and Open Forum: The Child with Renal Disease Moderator: Leon Goldman, M.D., Frank A. Gotch, M.D., James S. Elliot, M.D., Mary B. Olney, M.D.
10:00-10:30	Hormonal Aspects, Felix O. Kolb, M.D.	12:30 p.m.	Annual Business Meeting
10:30-10:50	Recess—Exhibits		
10:50-11:20	Surgical Considerations in Hypertension, Robert C. Combs, M.D.		

Medical Assistants Traveling Symposium

A traveling educational symposium for medical assistants is being sponsored by the Texas Medical Assistants Association through a grant of the Texas Medical Association. This one-day symposium is designed to make educational opportunities available to as many medical assistants throughout the state as possible.

Subjects on the symposium include "The Art of Being a Medical Assistant," "Billing and Collecting," "How to Keep Out of Legal Trouble," "Medical Ethics," "Doctor — Medical Assistant —

Patient Relationship" and "The Certification Program for Medical Assistants."

The American Medical Assistants Association has been approved by the American Medical Association. Its program is designed to reach such medical assistants as nurses, receptionists, medical and office secretaries, technicians and bookkeepers. Information on the program can be obtained from Miss Jo Estrada, R.N., who is chairman of the organization's educational program and president-elect of the TMAA, 1611 W. Huisachi, San Antonio.

Seminar on Human Aging

Clovis, N. M., Oct. 1-3

The New Mexico Conference for Postgraduate Training in Neurology and Psychiatry will present a Seminar on Human Aging, Oct. 1-3, 1964, in Clovis, N. M.

The conference is an informal joint effort under the sponsorship of the Committee on Mental Health and Alcoholism of the New Mexico Medical Society, the New Mexico State Hospital, and the New Mexico Chapter of the American Academy of General Practice.

Dr. George W. Prothro, Clovis, is chairman of the Seminar, and Dr. Allan L. Haynes, Clovis, a Past President of the N. M. Medical Society, is chairman of arrangements. Officers of the sponsoring groups are Dr. Omar Legant, Albuquerque, President of the N. M. Medical Society, Dr. Robert P. Beaudette, Raton, President-Elect of the N. M. Medical Society, Dr. Dan Palmer, Superintendent of the N. M. State Hospital, and Dr. J. J. Smoker, Raton, a member of the board of directors of the N. M. Chapter of the AAGP. Chairmen of the sessions will be Dr. Walter D. Dabbs, Dr. Martin B. Goodwin, Dr. Haynes, Dr. James W. Messer, and Dr. James B. Moss, all of Clovis.

The banquet speaker on the night of Oct. 1 will be Dr. John F. Conway, Clovis, Past President of the N. M. Medical Society, who will show slides and talk on "Recent Experiences with Medicine in Saigon."

Members of the teaching staff are: Richard B. Angle, M.D., Internist, Santa Fe; David Davis, M.D., Psychiatrist, University of Missouri School of Medicine, Columbia, Missouri; Herbert B. Fowler, M.D., Psychiatrist, Director for Continuing Education in Psychiatry, College of Medicine, University of Utah, Salt Lake City; George Gliva, Psychiatric S. W. Director, N. M. Mental Health Project, State Dept. of Mental Health, Santa Fe;

Wm. G. Harrison, M.D., Internist, Director, Geriatric Services, N. M. State Hospital, Las Vegas, N. M.;

Rev. Al Krader, Assistant Rector, Church of the Holy Faith, Santa Fe; M. Paul Mains, M.D., Radiologist, Farmington, N. M.; Rev. Douglas Mould, Rector, Episcopal Congregation, Clovis; Rev. Henry Seaman, Rector, Church of the Holy Faith, Santa Fe; Martin Brandfonbrener, M.D., Internist, Dept. of Internal Medicine, University of N. M. School of Medicine, Albuquerque; Freeman Fountain, M.D., Medical Director, Rehabilitation Center, Bataan Memorial Hospital, Albuquerque;

Leonardo Garcia-Bunuel, M.D., Director, Clinical Programs, Colorado State Hospital, Pueblo, Colo.; Arnold H. Greenhouse, M.D., Neurologist, Dept. of Internal Medicine, University of N.M. School of Medicine, Albuquerque; Bergere A. Kenney, M.D., Internist, Santa Fe; Rev. Robert Maas, Chaplain, N. M. State Hospital, Las Vegas, N. M.; H. M. Mortimer, M. D., General Practice, Las Vegas, N. M.;

Dan Palmer, M.D., Psychiatrist, Superintendent, N. M. State Hospital, Las Vegas, N. M.; and Robert A. Senescu, M.D., Psychiatrist, Chairman and Prof., Dept. of Psychiatry, University of N. M. School of Medicine, Albuquerque.

The complete program is as follows:

October 1	
<i>Morning</i>	
<i>Session:</i>	George W. Prothro, M. D., Chairman
8:00-9:00	Registration
9:00-9:05	Invocation, Rev. Douglas Mould
9:05-9:15	Welcome, Dr. Omar Legant
9:15-9:35	The Clinical Indivisibility of the Human Being, Dr. Robert P. Beaudette
9:40-10:25	A Psychiatric Overview of Human Aging, Dr. Robert A. Senescu
10:25-10:40	Discussion and Questions from the Floor
10:40-11:25	Family Counseling and the Aged, Dr. Herbert B. Fowler
11:25-11:40	Discussion and Questions from the Floor
11:40	Recess

Afternoon

<i>Session:</i>	James B. Moss, M.D., Chairman
1:30-2:15	Rehabilitation of Stroke Victims in a Small Hospital, Dr. Freeman Fountain
2:15-2:30	Discussion and Questions from the Floor
2:30-3:00	Physiologic Studies in Aging, Dr. Martin Brandfonbrener
3:00-3:15	Discussion and Questions from the Floor
3:15-3:30	Coffee Break
3:30-5:00	Panel Discussion: Transitory Behavior Disorders in Aged Ambulatory Patients, Moderator: Dr. Dan Palmer, Dr. Richard B. Angle, Dr. Robert A. Senescu, Dr. Herbert B. Fowler, Dr. David Davis, Dr. Martin Brandfonbrener
5:00	Recess
6:30-7:30	Cocktails
7:30 P.M.	Banquet Speaker: John F. Conway, M. D., General Surgeon, "Recent Experiences with Medico in Saigon" (slides)

October 2

Morning

<i>Session:</i>	James W. Messer, M. D., Chairman
9:15-10:00	Out Patient Care of Psychiatrically Ill Aged Persons, Dr. David Davis
10:00-10:15	Discussion and Questions from the Floor
10:15-10:45	A Common Sense Clinical Approach to Aged Patients, Dr. Richard B. Angle
10:45-11:00	Discussion and Questions from the Floor
11:00-11:45	Neurological Changes and Disorders Common to Advanced Age, Dr. Arnold H. Greenhouse
11:45-12:00	Discussion and Questions from the Floor
12:00	Recess

Afternoon

<i>Session:</i>	Walter D. Dabbs, M. D., Chairman
1:30-2:00	Treatment and Fate of Aged Patients in State Hospitals, Dr. Leonardo Garcia-Bunuel
2:00-2:15	Discussion and Questions from the Floor
2:15-2:30	Coffee Break
2:30-4:05	Panel Discussion of this case, in depth: "A Citizen Once Prominent" . . . Case Narrative by Mr. George Gliva What Would Be Your Solution? Panel Moderator: Dr. Richard P. Beaudette, Dr. David Davis, Dr. Leonardo Garcia-Bunuel, Dr. Bergere A. Kenney, Dr. M. Paul Mains, Dr. H. M. Mortimer, Rev. Douglas Mould
4:05-4:30	Discussion and Questions from the Floor
4:30	Adjournment

October 3

Morning

<i>Session:</i>	Martin G. Goodwin, M. D. Chairman
9:30-10:00	A Recent Inter-Agency Study of Resources for the Care of the Aged, Dr. Wm. G. Harrison
10:00-10:15	Discussion and Questions from the Floor
10:15-10:30	Panel Moderator: Rev. Henry Seantient," with Introductory Remarks by Rev. Al Krader
10:30-12:00	Panel Moderator: Rev. Henry Seantient, Dr. Richard B. Angle, Dr. H. M. Mortimer, Dr. Allan L. Haynes, Dr. Leonardo Garcia-Bunuel, Rev. Robert Maas
12:00-12:15	A Summing Up, Dr. Robert P. Beaudette
12:15	Adjournment

National Pediatrics Congress To Meet In Juarez

Outstanding Pediatricians from the U. S., Mexico and Canada will meet in Juarez, Mexico, Sept. 12-16, 1964, for the 10th annual National Pediatrics Congress.

Among speakers will be such notables as Dr. Virginia Apgar, New York, Director of the Division of Congenital Malformations of The National Foundation, Dr. David Yi Yung Hsia, Professor of Pediatrics at Northwestern University Medical School, Dr. Jesus Lozoya Solis, Mexico City, Dr. Robert E. Gross, Professor of Children's Surgery at the Children's Medical Center in Boston, Dr. John H. Githens, Denver, Professor of Pediatrics at the University of Colorado Medical Center, Dr. Luis Garibay, Guadalajara, President of the Latin-American Association of Pediatrics, Dr. Jorge Olarte, Mexico City, Dr. Jesus Alvarez de los Cobos, Mexico City, Dr. Rafael Ramos Galvan, Mexico City in charge of nutrition at the Hospital

Infantil de Mexico, Dr. Lazaro Benavides, Mexico City, President of the National Association of Pediatricians, Dr. Russell J. Blatner, Houston, Professor of Pediatrics at the Baylor University College of Medicine, and Dr. Frederico Gomez, Mexico City, Director of the Social Security Pediatrics Hospital.

Simultaneous translation will be provided in Spanish and English for all talks. Headquarters for the meeting will be the new convention center in Juarez, part of the multi-million dollar Border Development Program. In charge of arrangements is Dr. Ramiro Vega Valdez, Avenida de las Americas 201, Juarez, Chih., Mexico.

Members of El Paso County Medical Society who will speak at the meeting are Dr. Paul Huchton, Dr. E. S. Crossett, Dr. John M. Verosky, Dr. Louis W. Breck, and Dr. Lynn W. Neill.

Flying Physicians Plan Meet In Palm Springs

Four Albuquerque physicians will be among guest speakers at the 10th annual meeting of the Flying Physicians Association in Palm Springs, California, Sept. 27-Oct. 2, 1964.

They are T. Morris Frazer, M.D., who will talk on "Environmental Stress in Light Aircraft Flying"; Donald E. Kilgore, M.D., "New Techniques and Evaluation of Vestibular Function"; John F. Muxworthy, Jr., M.D., "The Role of Hypoxia in Light Aircraft"; and Albert H. Schwichtenberg, M.D., "How Space Medicine Will Change the Private Practice of Medicine". All are

staff members of the Lovelace Clinic.

Principal speaker will be Bernt Balchen, long associated with Admiral Richard E. Byrd, who piloted Admiral Byrd's "America" during the Atlantic crossing of 1927 and who in 1929 was the first man to fly over the South Pole.

Subjects to be discussed include "Pathology of Aviation Accidents", "The Effect of Drugs and Alcohol in Aviation", "Psychological Factors Involved in Flying", and "Vestibular Disorientation in Unusual Attitudes". Headquarters will be at the Riviera Hotel.

Solid Tumor Chemotherapy in Perspective—1964*

By WILLIAM S. FLETCHER, M.D.**

Introduction

The treatments available for cancer in 1964 are surgery, irradiation, hormonal therapy and chemotherapy. They are useful in that order and unfortunately, only the first two methods offer the patient a chance for cure. For the responsive patient, hormonal therapy offers better quality palliation with less side effects than does chemotherapy. However, in our present state of knowledge hormonal therapy is applicable only to patients with cancer of the thyroid, prostate, breast and endometrium.

The most recent estimates from the American Cancer Society¹ indicate that cancer is the second greatest cause of death. It will affect one out of four now living Americans and two out of every three families. The tremendous recent interest in chemotherapy is due to the fact that only one patient in three can be expected to be a five-year survivor with present methods of therapy. As much of the literature on the subject is confusing, it will be the purpose of this communication to attempt to clarify what is currently useful for the practicing physician at the community level.

Some background information is helpful. The concept of chemotherapy is not new; it has been known for years that many compounds have the capacity to inhibit division of neoplastic cells. This

property is not specific for malignant cells, however, and is effective against any rapidly dividing tissue such as the bone marrow and the lining of the gastrointestinal tract. The use of anti-mitotic drugs has therefore been limited until recently to use on malignancies of the hematopoietic system. Two devices have been used in an attempt to overcome this host toxicity and make drugs more specific for tumors.

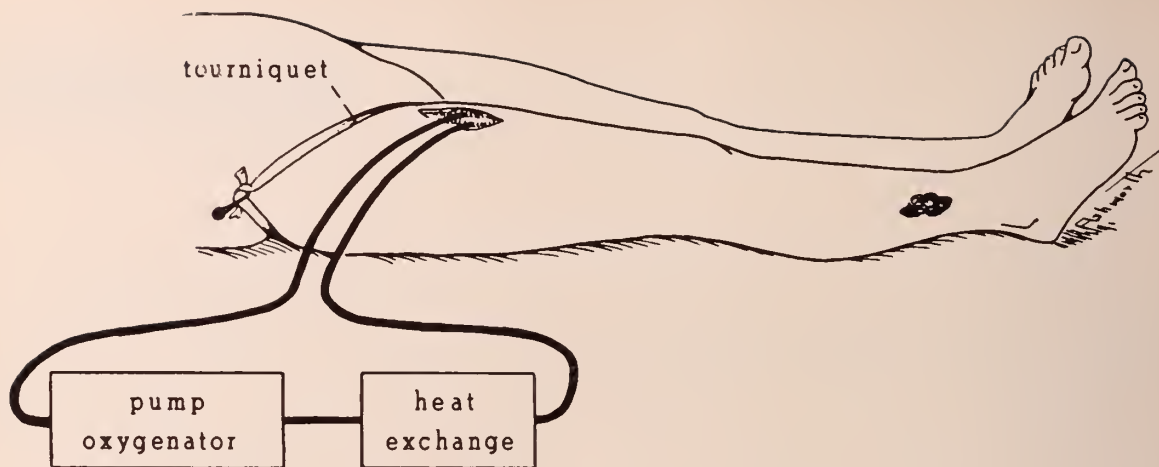
Drug Tailoring

First, drugs have been pharmacologically tailored for a specific purpose and second, ingenious techniques have been developed to limit the effect of a drug to the area of a tumor. An example of making a new drug for a particular purpose is L-Phenylalanine mustard. It is known that malignant melanomas metabolize Phenylalanine in the synthesis of melanin pigment. For this reason an alkylating radical was attached to the Phenylalanine molecule in an effort to carry it to the tumor. L-Phenylalanine mustard was formed and has been found to have a somewhat increased uptake by melanomas and to be of value in the treatment of some melanomas and sarcomas by perfusion. It is also useful for the treatment of several other tumors when given orally.

The synthesis of 5-Fluorouracil to compete with uracil in the formation of DNA and RNA is a similar example of tailoring a drug for a particular purpose.

*From the Department of Surgery, University of Oregon Medical School, Portland, Oregon.

**Assistant Professor of Surgery, University of Oregon Medical School, Markle Scholar in the Medical Sciences.
This work supported in part by contributions given in memory of Mrs. Anne McLean, Mr. Robert Brounell and Mr. Richard Lange.



ISOLATION PERFUSION

Figure 1

Diagram illustrating isolation perfusion of the lower extremity. Catheters may be placed through the common femoral or external iliac vessels. The limb is isolated from the systemic circulation by a tourniquet passed over a pin driven into the iliac crest.

Methods of Administration

The concept of limiting the use of a drug to the area of a tumor is the other advance which has revived an interest in chemotherapy.

In 1950 Klopp² described the administration of nitrogen mustard into an artery leading to a tumor. In 1958 Creech, et. al. and Ryan, et. al.^{3,4} utilized a pump oxygenator to extend this principle to the perfusion of an isolated tumor bearing portion of the body. This procedure was theoretically so attractive that it very rapidly led to perfusion of virtually every kind of tumor in every area of the human body. The experience gained has led us to believe that at the present time the technique is best used for malignant tumors of the extremities where escape of the drug can be controlled. With L-Phenylalanine mustard and Actinomycin D, perfusion is useful for treatment of melanomas and sarcomas of the extremities. What is not yet certain is when perfusion should be carried out, i.e., should it be just a palliative measure or should perfusion be done as an adjuvant measure before or in conjunction with the definitive surgical therapy of melanomas and sarcomas. This problem is currently under study in a number of

centers and it is hoped that answers will be forthcoming in the near future.^{5,8} It seems reasonable to believe that perfusion prior to surgery would affect any cells capable of successfully implanting as metastases and will be the procedure of choice.

In 1959 Sullivan⁹ described the administration of the antimetabolite methotrexate into an artery leading to a tumor, while simultaneously giving an antagonist (Citrovorum factor) intra-muscularly. This allowed a maximum concentration of the drug in the tumor while preventing systemic toxicity by neutralizing the unmetabolized portion of the drug. The complications of air embolus, hemorrhage, sepsis and catheter dislodgment are at times formidable but with experience most of these can be avoided.¹⁰ Useful remissions have been obtained in squamous tumors of the head, neck and cervix. Other drugs such as 5-Fluorouracil can be used in this way without an antagonist, and experience in infusing other areas of the body, such as the liver, is rapidly being obtained.^{11,15}

The concept of giving a drug at the time of surgery to kill any malignant cells which may be circulating about is theoretically very attractive.

The question has been studied by the Veterans Administration Hospitals and in National Cooperative Programs using the alkylating agent Thio-TEPA given at the time of surgery for carcinoma of the lung, stomach, colon, rectum, ovary and breast. With the drug used there was no significant effect on the first three tumors tested. Patients with carcinoma of the ovary received some benefit as did premenopausal breast cancer patients who had positive axillary lymph nodes. In this instance the time of recurrence was delayed. These findings suggest to the author that the Thio-TEPA may work on the ovary, adrenal gland or pituitary rather than directly on the tumor.

By far the most common method of using chemotherapeutic agents is the repeated oral or intravenous administration of a drug to control widely disseminated disease. The basic principle in this instance is to give enough of a particular agent to cause some evidence of toxicity and identify the maximum tolerated dosage of that drug for that patient. The patient is then allowed to recover from this toxicity and treated on a daily, weekly or monthly basis at subtoxic levels. If there is no response after a four to eight week

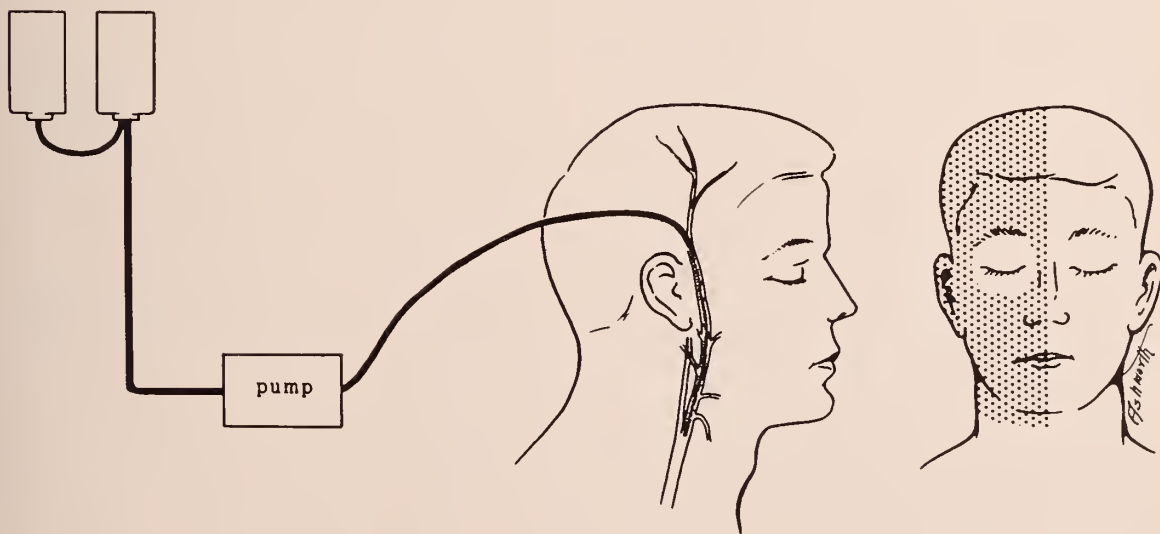
trial, or if an initial response is followed by tumor resistance to the drug, another agent is tried.

There is some variation in toxicity among drugs. In general, however, toxicity is manifested by leukopenia, thrombocytopenia, anemia, stomatitis, alopecia, nausea, vomiting, diarrhea and fatigue. Patients vary widely in the amount of a drug which is tolerated and in the toxicity which is manifested. With careful observation toxicity can usually be identified with only one or two of the above symptoms and therapy discontinued to be resumed at a lower level. An occasional patient may be exquisitely sensitive to a drug and suffer such profound leukopenia that prophylactic antibiotics, protective isolation and fresh whole blood transfusions will need to be employed.

Basic Principles of Chemotherapy

Whom to Treat

Until recently it was the opinion of this writer that chemotherapy for solid tumors was strictly experimental. It is now apparent that enough has been learned about some tumors and drugs so that this position is no longer tenable. Patients with tumors which are known to be responsive to a particular chemotherapeutic agent should not be



ARTERIAL INFUSION OF THE EXTERNAL CAROTID ARTERY

Figure 2

Diagram illustrating arterial infusion of the external carotid artery. The catheter is introduced through superficial temporal artery and the area infused is identified by injecting fluorescein through the catheter and viewing the patient under a Wood lamp. Note the tandem bottle to prevent air embolus and the Barron food pump used to maintain a constant rate.

Table 1

Tumors	Agents
Breast	5-fluorouracil Thio-TEPA Velban
Ovary	5-fluorouracil Thio-TEPA Chlorambucil
G I Tract	5-fluorouracil L-Phenylalanine mustard
Lymphomas	All alkylating agents Velban Vincristine
Choriocarcinoma	Methotrexate Actinomycin D Chlorambucil
Embryonal Ca	Methotrexate Actinomycin D Chlorambucil
Melanomas	L-Phenylalanine mustard Actinomycin D
Sarcomas	L-Phenylalanine mustard

allowed to deteriorate and die without at least being considered for a trial of chemotherapy (Table 1.) Just as the treatment for heart failure is digitalis and the treatment for diabetes is insulin, so the therapy for responsive, otherwise untreatable, cancer is chemotherapy.

Rochlin¹⁶ has reported objective remissions of adenocarcinoma of the colon and rectum in 40 per cent of the patients treated with 5-fluorouracil^{17,19}. As good or better results may be expected from treating choriocarcinoma or carcinoma of the breast and ovary with the appropriate drugs. It is clear that useful weeks, months and years of life may be obtained and that results can be expected to improve as knowledge in the field progresses. Patients are grateful for relief of their symptoms, for the attention and interest paid them, and most of all, for the fact that they are still allowed hope and have not been abandoned to die²⁰. Frequently after a response to one or more chemotherapeutic agents patients deteriorate very rapidly and are allowed to die with grace and dignity which befits a soldier who has lost the hard fought battle. For the first time the physician has an agent other than sympathy with which to treat the patient with advanced cancer and it behooves all of us to learn at least the basic principles of chemotherapy.

When to Treat

All too often the chemotherapist is called to see

an emaciated, pain wracked cancer victim and asked to rejuvenate him. It cannot be done. Patients in such condition will not tolerate enough chemotherapy to determine whether or not the drug is effective. Treatment of such individuals will hasten their death and can only serve to make chemotherapy a highly questionable affair. Patients should be treated at the first time there is evidence of progressive disease which cannot be effectively treated for cure, or palliation, by surgery, irradiation, or hormonal therapy. Often the question is whether or not to treat an asymptomatic patient who is known to have residual disease, e.g., the post gastrectomy patient who is known to have positive celiac axis lymph nodes remaining. An occasional such patient may remain asymptomatic for years and therefore we prefer to await some evidence of progressive disease such as an enlarged liver, a pulmonary metastasis, a wound implant, or weight loss before starting therapy.

Precautions

Patients who are known to be very poor risks and in whom treatment should be approached with

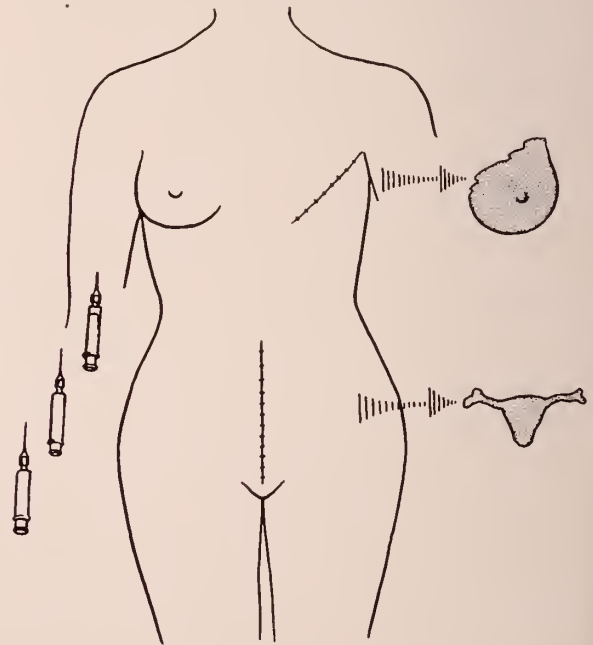
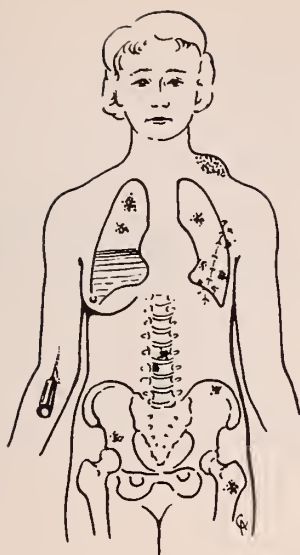


Figure 3

Diagram illustrating the concept of adjuvant chemotherapy. The drug is usually given on the day of operation and the first and second post-operative days. To date, with Thio-TEPA, only patients with carcinomas of the breast or ovary have benefited.



1 —	2	3	4 —	5	6	7
8 —	9	10	11 —	12	13	14
15 —	16	17	18 —	19	20	21
22 —	23	24	25 —	26	27	28
29 —	30	31				

Figure 4

Diagram illustrating the concept of systemic suppressive chemotherapy for widespread malignant disease. The drug dose is carefully increased until some evidence of toxicity indicates the maximum tolerated dosage. Toxicity is allowed to subside and treatment continued at subtoxic levels.

great caution include: 1. persons in the immediate post operative period, 2. persons who cannot eat, 3. persons who are not ambulatory, 4. persons who have had extensive previous irradiation, 5. persons who have had previous prolonged courses of alkylating agents, and 6. persons who have had adrenalectomy, hypophysectomy, or who are suspected of having tumor involvement of these organs.

It is essential that the physician starting to use a drug for the first time follow a well established protocol. Alteration of even the rate or duration of administration may be a lethal mistake, e.g., methotrexate is five times as toxic when given in five divided doses over five days as when given in a single intravenous dose. On the other hand the toxicity of 5-fluorouracil is markedly reduced by giving it as an eight hour intravenous infusion rather than in a single intravenous injection. The effect of the drug on the tumor is also reduced.

Summary

The background and current methods of administration of chemotherapy are outlined. A plea is made for earlier treatment of patients who have tumors which may be sensitive to chemotherapy. The problems of whom to treat and when to start therapy are discussed.

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MEDICAL OFFICIALS—Officers of the N. M. chapter of the American Academy of General Practice participating in the seventh annual Ruidoso Summer Clinic, July 20 through 23, at Ruidoso are, left to right, Dr. Bram Vanderstok, Ruidoso, new president, Dr. Walter J. Hopkins, Lovington, retiring president, Dr. James A. Koch, Albuquerque, president-elect, Dr. Herschel L. Douglas, Lovington, re-elected secretary-treasurer, Dr. U. S. Marshall, Roswell, re-elected delegate to the AAGP, and Dr. J. A. Rivas, Belen, delegate. Not shown is Dr. Paul Feil, Deming, new vice-president.

Dr. Vanderstok Elected President of N.M. A.A.G.P.

Dr. Bram Vanderstok, Ruidoso, was elected President of the New Mexico Chapter of the American Academy of General Practice at its Seventh Annual Ruidoso Summer Clinic in Ruidoso, New Mexico, July 20-23, 1964.

Other new officers are Dr. James A. Koch, Albuquerque, President-Elect and Dr. Paul Feil, Deming, Vice-President. Dr. Herschel L. Douglas, Lovington, was re-elected Secretary-Treasurer. Dr. Walter J. Hopkins, Lovington, was the retiring President. Also elected were Dr. H. P. Borgeson, Alamogordo, for a one-year term as a Director, Dr. John J. Smoker, Raton, for a three-year term as Director, and Dr. Clifford E. Molholm, Albuquerque, as Alternate Delegate. Dr. Don D. Mabray, Albuquerque, continues as a Director, Dr. J. A. Rivas, Belen, as a Delegate to the AMA and Dr. Fred R. Brown, Roswell, as Alternate Delegate to the AMA. Dr. U. S. Marshall, Roswell, was re-elected to a two-year term as Delegate to the AMA.

The 1965 meeting will be held July 19-22 in Ruidoso, with headquarters at the Chaparral Motel. The program will be presented by the University of Kansas Medical School.

Speakers for the meeting were Dr. Julius Michaelson, Foley, Ala., President of the AAGP, W. L. Hard, Ph.D., Vermillion, S. D., Dean of the University of South Dakota Medical School and Pro-

fessor of Anatomy there, Dr. William S. Fletcher, Dr. Ralph C. Benson, Dr. Robert A. Campbell, and Dr. J. David Bristow, all from the University of Oregon Medical School.

Dr. Vanderstok was born in Indonesia and received his M.D. from the University of Utrecht in Holland. He interned for two years in Holland, took a residency in Obstetrics and Gynecology in the Syracuse General Hospital in Syracuse, N. Y., and began the practice of medicine in Eunice, N. M., where he practiced briefly before moving to Ruidoso. Dr. Vanderstok was with the Dutch Air Force and the Royal Air Force during World War II. He was piloting a Spitfire when he was shot down over France and imprisoned in Stalag Luft 3, from which he escaped three times. His experiences formed the basis for the movie, "The Great Escape".

Dr. Broda O. Barnes, Ph.D., M.D., Professor of Physiology at Colorado State University at Fort Collins, Colo., presented an exhibit entitled, "Factors Affecting Coronary Heart Disease".

Exhibitors at the Ruidoso meeting were Medical Division of Western Oxygen, Inc., Ross Laboratories, Eaton Laboratories, Western Instruments, Anesthesia and Inhalation Therapy Division of the New Mexico Steel Co., and Wyeth Laboratories.



RUIDOSO SPEAKERS—Speaking at the Seventh Annual Ruidoso Summer Clinic in Ruidoso, N.M., July 20-23, 1964, were, left to right, Dr. Julius Michaelson, Foley, Ala., President of the AAGP, Dr. Ralph C. Benson, Professor of Obstetrics and Gynecology at the University of Oregon Medical School, W. L. Hard, Ph.D., Vermillion, S. D., Dean of the University of South Dakota Medical School and Professor of Anatomy there, and Dr. Robert A. Campbell, Assistant Professor of Pediatrics at the University of Oregon.

Coming Meetings

N. M.—El Paso Chapter, American College of Surgeons, Chaparral Motel, Ruidoso, N. M., Sept. 11-13, 1964.

Fourth Annual Educational Afternoon, Sept. 12, 1964, in conjunction with the Scott and White Alumni Assoc. Reunion, Sept. 11-12, 1964, Temple, Texas.

10th Annual National Pediatrics Congress, Convention Center, Juarez, Chih., Mexico, Sept. 12-16, 1964.

94th Annual Session of the Colorado Medical Society, Broadmoor Hotel, Colorado Springs, Sept. 16-19, 1964.

Flying Physicians Association, Riviera Hotel, Palm Springs, Calif., Sept. 27-Oct. 2, 1964.

Fourth Annual N. M. Psychiatric Seminar for Non-Psychiatric Physicians, Clovis, N. M., Oct. 1-3, 1964.

Annual Meeting of the American Fracture Association, Philadelphia, Oct. 4-8, 1964.

Western Association of Railway Surgeons, Annual Meeting, Sun Valley, Idaho, Oct. 7-11, 1964.

The American College of Physicians, Fall Meeting, Hotel Biltmore, Los Angeles, Calif., Oct. 8-10, 1964. For Information: Edward C. Rosenow, Jr., M.D., Exec. Dir., 4200 Pine Street, Philadelphia, Pa.

Annual Meeting of the Arizona Academy of General Practice, Francisco Grande Motor Inn, Casa Grande, Ariz., Oct. 8-10, 1964.

Southwestern Medical Association, 46th Annual Meeting, Flamingo Hotel, Las Vegas, Nev., Oct. 22-24, 1964.

Southwestern Dermatological Society, October 24-25, 1964, Tropicana Hotel, Las Vegas, Nev.

Southwest Obstetrical and Gynecological Society, Annual Meeting, El Paso, Oct. 29-31, 1964.

Seventh Interim Session, House of Delegates, New Mexico Medical Society, Los Alamos, Nov. 20-21, 1964.

Ninth Annual Meeting of the Medical Society of the United States and Mexico, Mountain Shadows, Phoenix, Ariz., Dec. 9-12, 1964.

District One, Texas Medical Association, Pecos, Texas, Feb. 6, with Post-Graduate Course, Feb. 7, 1965.

Twenty-Third Annual Meeting, U.S.-Mexico Border Public Health Assoc., Los Angeles, Calif., April 26-29, 1965.

83rd Annual Meeting of the New Mexico Medical Society and 12th Biennial Meeting of the Rocky Mountain Medical Conference, La Fonda, Santa Fe, May 9-15, 1965.

8th annual Ruidoso Summer Clinic, sponsored by the New Mexico Chapter of American Academy of General Practice, Ruidoso, N. M., July 19-22, 1965. Headquarters: Chaparral Motel.



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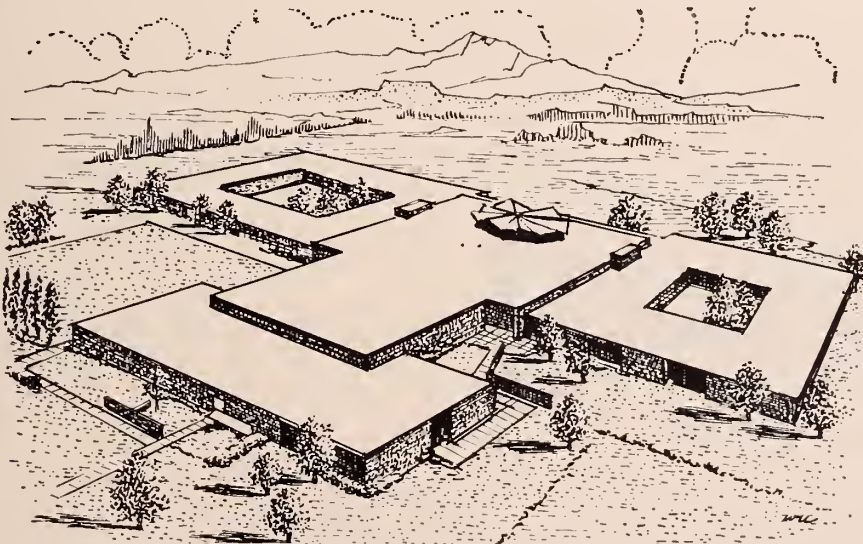
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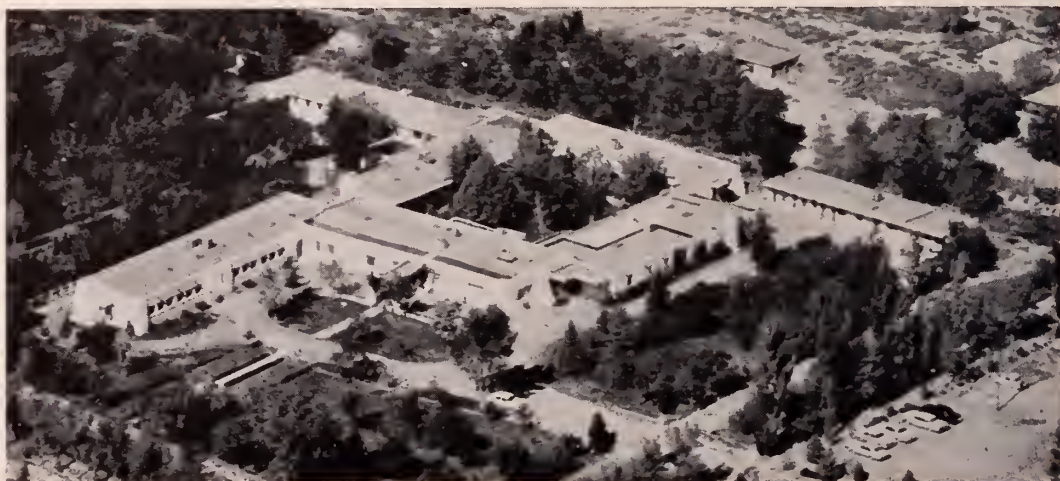
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Official Journal of the Southwestern Medical Association,
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Texas District One Medical Association, The Southwestern New Mexico Medical Society,
and El Paso County Medical Society

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ATTEND
46TH ANNUAL MEETING
SOUTHWESTERN MEDICAL ASSOCIATION
FLAMINGO HOTEL LAS VEGAS, NEVADA
OCT. 22-24, 1964

VOL. 45, NO. 10

October, 1964



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1. Editorial: Postgrad. Med., 31:102, 1963. 2. Brise, H., and Hallberg, L.: Acta med. scandinav., 171 (Supplement No. 376):23, 1962. 3. Sheehy, T. W.: Blood, 18:623, 1961.

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Research in the Service of Medicine

1. Roach, T. C.: Therapy of Peptic Ulcer, J. Louisiana Med. Soc. 115:136-139 (April) 1963.
2. Steinberg, H., and Almy, T. P., Drugs for Gastrointestinal Disturbances, Chapter 21, in Modell, W. (editor): *Drugs of Choice*—1964-1965, St. Louis, The C. V. Mosby Company, 1964, p. 343.

Southwestern Medicine

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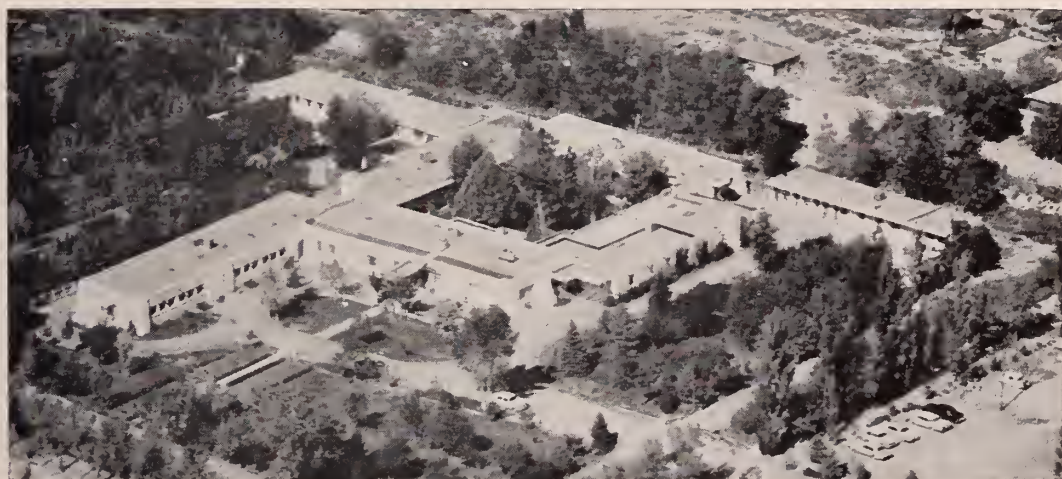
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Coming Meetings

Western Association of Railway Surgeons, Annual Meeting, Sun Valley, Idaho, Oct. 7-11, 1964.

The American College of Physicians, Fall Meeting, Hotel Biltmore, Los Angeles, Calif., Oct. 8-10, 1964. For Information: Edward C. Rosenow, Jr., M.D., Exec. Dir., 4200 Pine Street, Philadelphia, Pa.

Annual Meeting of the Arizona Academy of General Practice, Francisco Grande Motor Inn, Casa Grande, Ariz., Oct. 8-10, 1964.

Southwestern Medical Association, 46th Annual Meeting, Flamingo Hotel, Las Vegas, Nev., Oct. 22-24, 1964.

Southwestern Dermatological Society, October 24-25, 1964, Tropicana Hotel, Las Vegas, Nev.

Southwest Obstetrical and Gynecological Society, Annual Meeting, El Paso, Oct. 29-31, 1964.

Seventh Interim Session, House of Delegates, New Mexico Medical Society, Los Alamos, Nov. 20-21, 1964.

Ninth Annual Meeting of the Medical Society

of the United States and Mexico, Mountain Shadows, Phoenix, Ariz., Dec. 9-12, 1964.

Eighth Annual Cardiac Symposium of the Arizona Heart Association, Arizona Biltmore Hotel, Phoenix, January 29 and 30, 1965.

District One, Texas Medical Association, Pecos, Texas, Feb. 6, with Post-Graduate Course, Feb. 7, 1965.

19th Annual Symposium on Fundamental Cancer Research, The University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, March 4, 5, 6, 1965.

23rd Annual Meeting, U.S.-Mexico Border Public Health Assoc., Los Angeles, Calif., April 26-29, 1965.

83rd Annual Meeting of the New Mexico Medical Society and 12th Biennial Meeting of the Rocky Mountain Medical Conference, La Fonda, Santa Fe, May 9-15, 1965.

Eighth annual Ruidoso Summer Clinic, sponsored by the New Mexico Chapter of American Academy of General Practice, Ruidoso, N. M., July 19-22, 1965. Headquarters: Chaparral Motel.



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Southwestern Medical Association Celebrates 50th Anniversary with Las Vegas Meeting

Although its meeting in Las Vegas, Nevada, October 22-24, 1964, will be the 46th in its history, the Southwestern Medical Association will be celebrating the 50th year of its history.

For this mid-century mark the Association will have members of its Faculty at Las Vegas provided by the School of Medicine, University of California, San Francisco Medical Center. This was arranged through courtesy of the School's Continuing Education in Medicine and Health Sciences.

Meetings of the Association were suspended during World War II and thus the discrepancy between the number of its sessions and the actual years of its existence. The first meeting of the Southwestern Medical and Surgical Association was held in El Paso in December, 1914. Name of the Association was changed to the present one in 1934.

Prominent on the Las Vegas agenda will be a talk on "The Treatment of Anxiety" at a luncheon October 23 in the Flamingo Hotel, headquarters for the meeting, by Chauncey D. Leake, Ph.D. Dr. Leake is the author of numerous articles and books and was President of the American Society of Pharmacology from 1958 to 1960. At present he is Senior Lecturer in Medical History and Pharmacology at the School of Medicine.

Dr. Leon Goldman, Professor of Surgery at the School, also a member of the Faculty, is First Vice President of the American College of Surgeons, is a member of the Credentials and Scholarship Committees of the American College of Surgeons,

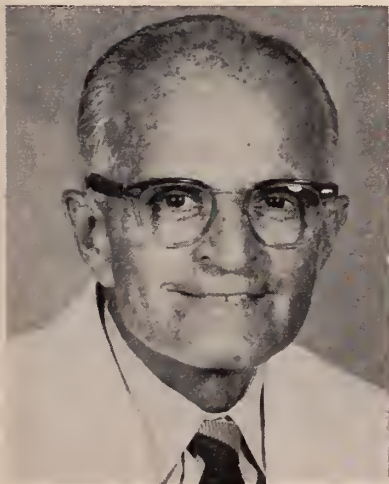
and is Examiner for the American Board of Surgery.

Another Faculty member, Dr. Mary B. Olney, is Executive Director of the Diabetic Youth Foundation. She has been Clinical Professor of Pediatrics at the School since 1951.

Dr. Frank A. Gotch of the Faculty is author of "Fluid and Electrolyte Disorders", a chapter in a Medical Textbook published last year, a subject on which he will speak at the Southwestern meeting. In addition to being Assistant Clinical Professor of Medicine at the School, he is a Consultant in Renal Diseases at the Veterans Administration Hospitals in Martinez, California, and at Fort Miley in San Francisco. He is also Chief of the Renal and Electrolyte Section at the San Francisco General Hospital.

Other members of the Faculty are Dr. James S. Elliot, Assistant Clinical Professor of Urology, Dr. Robert C. Combs, Assistant Clinical Professor of Surgery, Dr. Felix O. Kolb, Associate Clinical Professor of Medicine and Assistant Director of the Metabolic Research Unit.

The three general topics for the meeting are "Systemic and Local Aspects of Urolithiasis", "The Hypertensive Patient" and "Diabetes and Renal Disease". The meeting will have morning sessions only and is open to all physicians. The annual dinner will be held at 7 p.m. on the 22nd in the Flamingo Room of the Flamingo Hotel, where Robert Goulet, popular vocalist and former star of "Camelot", will be singing.



Dr. Goldman



Dr. Olney



Dr. Elliot

The Future of General Practice*

By JULIUS MICHAELSON, M.D., *Foley, Alabama,*

President of the American Academy of General Practice

Standing before you, you see a living, breathing, admitted and proud general practitioner. Not too many years ago you could have found plenty of even money, not at the parimutual window, contending that our breed or our species would be extinct by now. There were those in high places in the American Medical Association and educational circles who said that the family doctor was on his way out, that he would soon have no place in the scheme of things to come and that he would be replaced by highly trained specialists who would restrict their medical or surgical practices to a hand full of human ailments or a clearly defined segment of the human body. This has not happened and let me assure you that it is not going to happen. The family doctor, a skilled physician in the general practice of medicine and surgery, is here to stay.

I am going to give you a straight-from-the-shoulder talk tonight. I am going to present to you the facts as I see them. I am going to be neither a diplomat, as I have been accused, nor a lady, which I hope I am obviously not.

I will tell you the truth and give you the facts as I see them. You are all intelligent doctors and I see no good reason to beat around the bush or to talk in so called glittering generalities. From time to time I'll insert a few cogent observations of my own but for the most part we will stay with the facts. Some of you may have heard the term "partial specialist." As far as I am concerned, and this attitude is shared by the American Academy of General Practice, there just isn't any such animal.

By any logical reasoning, and I am not talking

now about association by-laws or requirements or board certification, a specialist should restrict his practice to one of the recognized specialty fields or lately called disciplines. The minute he steps over the line, unless he is responding to an emergency, he is no longer a specialist and should not designate himself as one. In many cities I know dozens of doctors who call themselves specialists, who are listed as specialists in the AMA directory, and yet these men are active practicing general practitioners. As a matter of fact, our Academy counts among its past presidents a dues-paying, Board certified surgeon, who will tell you very honestly that he does no surgery and hasn't for many years. I would encourage our colleagues not to go half-way. Don't be a maverick in medicine. Be either a good, competent general practitioner or a true specialist consultant.

No Longer Possible

Only a few years ago a doctor did not have to make such a key decision. In those days a medical graduate was a medical graduate. He took a rotating internship and entered practice. If he wanted to specialize he joined a preceptor in the specialty of his choice, built a reputation, and then limited his practice. This is no longer possible today.

Limitation of practice without formal residency training has all but gone to the wind. The starting of the general practice of medicine after one year of a rotating internship is a rapidly dying custom. With the development during the past generation of nineteen specialties, five sub-specialties, and 27 divisions of specialties, a total of 51 recognized types of special medical practice, it has become impossible for any one physician to cover the medical horizon. No family doctor expects or wants to do so.

*Presented at the Seventh Annual Ruidoso Summer Clinic, Ruidoso, N.M., July 20-23, 1964, sponsored by the N.M. Chapter of the AAGP.

Much has been written about the general practice of medicine during the past decade. Controversy has raged in our medical schools concerning the tendency to subjugate the individual and his personality to his pathology. Controversy has raged in our hospitals where the family doctor has been, until recently, crowded to the wall by the advent of specialization. Controversy has raged in our medical societies where action has been taken on behalf of the family physician. You may be aware of Dr. Weiskotten's figures which indicate that three out of every four medical graduates have, in recent years, been entering a specialty. In one medical school which I visited just last week the percentage of two per cent of the graduating class was going into general practice.

Many of you have attended medical schools where general practice or the LMD were dirty words to the faculty. Several years ago one prominent so-called medical educator said "The pressure to train general practitioners is a threat to sound, scientific teaching." This man called an undergraduate course in general practice a flagrant anachronism.

No Wonder

It is no wonder that some of our recent graduates have never seen a family doctor. It is no wonder that they are understandably afraid that they will never be able to practice scientific medicine unless they devote themselves to a special field.

One recent medical student described his education in general practice like this: "Here there is no subject matter in general practice — no family to visit and to follow through our medical teachings as some other medical students have. Here we have marked dogmatism in each department with apparently little attempt made to look at the patient as a whole. If it is an itch, to the allergy clinic; if it is an itch with a rash, to the dermatology clinic; if she is bleeding, GYN gets her; if she is not bleeding, send her to the endocrine clinic; if it is a joint ache, then the orthopods and the arthritis clinic will have a fight over it; and one by one, so it goes down the line. And it is all topped off by the University itself frowning on a rotating internship."

I have little wonder that this student's school and many others are producing a plethora of specialists who are experiencing difficulty in locating

where they can make a living from a populace that is crying for an increase in the supply of family physicians. You have undoubtedly heard that for every general practice residency available there are 50 specialty residencies open. Perhaps 90 per cent of all filled residencies that today go into specialties, that many of the general practice residencies are just not worth the two years of time.

You have probably read the Rockefeller Foundation report on medical practice in North Carolina with its verified observation of some practitioners who examine through five thicknesses of clothing, who do not use an ophthalmoscope or own a microscope, who fail to do vaginal examinations, who have never heard of a proctoscope. You have read of the rapid growth of panel practice, with groups of four to 75 physicians working together — all specialists without one general practitioner on the staff. You have heard that internists are now trying to term themselves family physician, and today there is a new society of internists with socioeconomic purposes.

All of these reports that you have heard are based on truth. There is inadequate preparation for general practice in our medical schools. There is a dearth of good general practice residencies. There is discrimination against family doctors in hospitals. There is a rapid growth of panel practice and general practice is at a low level. All these conditions do exist and we would all be wise to recognize them. But there have been many changes in the last two years and the questions for us to answer are these — What does the future hold for general practice? Has the pendulum of specialization swung too far? Is there a return to the general practice of medicine in keeping with the demands of the people who consume medical services and who pay for them? It is the wise man who could look into the crystal ball and answer these questions. But let's have a look at some of the facts.

The Debate

Many years ago, more than I like to admit, as a freshman medical student at Louisiana State, I heard friends and faculty members talk about the future of general practice. Some said that it had no future at all. Others were optimistic. Some said that only the specialist would survive. Others said that the family doctor would always be the quarter-back or the captain of the health care team. Nobody won the arguments and nobody lost

but the debate went on and on and on.

A few years later as a neophyte practitioner, I heard echoes of the same debate, the same old pros and cons. Still no answers emerged. When I joined this Academy in 1949 I learned that one of our prime objectives is to preserve the right of the general practitioner to engage in medical and surgical procedures for which he is qualified by training and experience, and I remembered the midnight oil discussions at Louisiana State, and I realized once again that no answer had emerged. Since joining this Academy I have probably read 100 editorials and articles on the future of general practice. I have heard this subject discussed in big cities and in small towns, in living rooms and delivery rooms, in hotels and motels and restaurants, and even one or two cocktail lounges. Everyone seems to have an opinion but no one seems to have the answer. If the future of general practice of medicine is of immediate interest to us individually as family doctors, it is, of course, of equal interest to the American Academy of General Practice, which, as you know, is the nation's second largest medical association. But let me emphasize that the mere presence of an association will never provide us with an answer. Our Academy is not a medical magic lantern that we can rub briskly and thereby guarantee the future of general practice. This Academy is simply a mechanism, a tool or an instrument, that we have created as a handmaiden to unified effort and organized endeavor (such as the unanimous resolution that was passed two days ago).

Definition

Two years ago the board of directors of the American Academy named a top level, ad hoc, long range planning committee. For three days and later for additional days and hours members of this committee ignored the past and present and concentrated only on the future of general practice and the Academy's contributions thereto. This committee has submitted its report which I will not discuss in detail. It is important, however, for all of us to recognize the fact that became apparent to this committee on the very first day that it met. This committee realized, as we must all realize, that it could not talk about the future of general practice without first of all pinning down the content of general practice. If general practice means one thing to you and means something entirely different to me then we are not making progress talking about the future of general practice. How

can we talk about the future of the automobile if one of us is talking about a Model-T and the other is talking about the jet racer that recently hit 428 miles an hour on the Utah Salt Flats?

This has been a problem for many years and it will not be an easy one for us to solve. When we talk about general practice and its future, are we talking the same language? Are we talking about general practice of the 1925 variety or general practice of the 1964 variety? Are we talking about general practice as is done in California or New Mexico, or as it is done by members in New York? Until we talk the same language, until we define the content of general practice, we will continue to spin our wheels at an increasingly rapid pace, without moving from the spot that we are in today.

Many Studies

Of course it will be impossible to define general practice in terms and words that will please each and every one of our 28,000 members. This, I submit, would be like painting a picture that all of us would want to hang in our homes. But after long and careful study a reasonable definition of general practice has been adopted by our Congress of Delegates. You may not like the definition that our congress has adopted and I may like it even less but we must have a base point, a bench-mark, a starting line or some other device that will let us communicate intelligently. The definition has been accomplished. Now we must move forward to a precise delineation of the content of general practice. I am not suggesting that we define the content of general practice in an arbitrary fashion based on good or bad guesses or inaccurate estimates. The Academy has done many studies which give us a clear picture of medicine as practiced by Academy members. In addition to knowing that 73 per cent of our members are under age 50 and that 64 per cent practice in a metropolitan area, we know that during a typical week 98 per cent of our members will treat an allergic disorder, 86 per cent will treat a mental, psycho-neurotic or personality disorder, 77 per cent will deliver at least one baby, 55 per cent will write between 50 and 150 prescriptions, and 36 per cent will do some major surgery. These are facts — only a few of the myriad of facts that have emerged from the studies that are still going on. They give us an accurate profile which can be broken down into any one of a thousand ways on our high speed IBM equipment. Of course I am not suggesting

that we pin our future on an IBM machine but neither can we afford to let our emotions obscure the simple facts of life. Until we can define the content of general practice, what can we say to deans and educators who are responsible for training the men and women who will fill our shoes?

Now it is true, as has been brought out very vividly, that some deans apparently do not want to be confused by facts. But others share our interest in the future of general practice. If we let them continue to stumble blindly down an unlighted path, we are paying little or no attention to the objectives and purposes of this Academy. I quoted one objective earlier, let me quote you another now: "To encourage and assist young men and women in preparing, qualifying, and establishing themselves in general practice."

This is more than an objective. It is an obligation and a responsibility. We have no right to talk about the future of general practice unless we are intellectually capable and morally motivated enough to assist these young men and women who are about to enter the door that we passed through many years ago.

We have been given information about our 28,000 members. Given a desire to define the content of general practice, we then must be practical and realistic. I am not suggesting that we abandon any of our concepts or downgrade the traditionally important functions of the family doctor. I do suggest, however, that he cannot be all things to all people and that efforts in this direction are perhaps well-intentioned but totally misguided. For one thing, no one doctor needs to know all there is to know about medicine because the fundamentals remain basically the same just as they have for many years.

Like Football

In a way the practice of medicine is like football. Technique has improved immeasurably since my days at LSU. But the fundamentals drilled into us are the same fundamentals that are drilled into grid-iron hopefuls of today, and though passing specialists, punting specialists, place-kicking specialists are vitally important, the championship team still needs its 60-minute players who can block and tackle. The more the better.

So it is in medicine. The specialists and the research men have brought technique and medical knowledge to an unbelievable level. But for the 80

per cent of human ailments that are older than medicine itself, the trained, experienced general doctor is best equipped to handle them effectively and within financial reason.

As presently constituted, one cannot consider the present one-year internship as adequate preparation for the general practice of medicine. If I were planning on general practice training today I should certainly consider two years of residency training or one year of general practice or internal medicine or surgery residency after internship as the irreducible minimum. This brings up the question of internal medicine. Why not spend those two years in internal medicine alone and be a specialist? It depends on what the young doctor wants to do—whether he wishes to be a family physician or a general practitioner or not. No internist can be a complete family physician. Neither can any pediatrician. They lack the broad field of training. They have depth of training in a special field, but not the wide range or breadth of experience necessary to be a competent general practitioner. I believe that the time is coming in the not too distant future when there will be fewer practicing pediatricians and fewer practicing internists and more well trained general practitioners working in both fields. I have not thus far discussed surgery. But I will do so very briefly:

Major Surgery

I do want to point out, however, that the day has come when no young physician can expect to do major surgery without training, formal training in a residency. If he plans on entering practice in a locality where he will do major surgery then he must take surgical training which will prepare him for that field. There are thousands of competent surgeons who do not have broad certification. There are thousands of general practitioners who have perfected surgical techniques and judgment over years of experience, and for their right to exercise their skills in the hospitals of their choice the American Academy has fought and will continue to fight—with individual competence the sole basis of allocation of surgical privileges.

What does all of this mean? All of this places on local groups, such as this, the N. M. Chapter of the American Academy of General Practice, a grave responsibility. A responsibility of calling for action, action with medical students, action with Deans, action with general practice residents, ac-

tion on a county level, action on the state level, action on the hospital staff level. And on this action and your activities will the future of American medicine, as we know it, depends.

This is no unilateral effort. We may be ever so successful with medical students. We may put GP into the hands of every one of the 7,000 senior students. We may have a general practice training program in every one of our 80-odd medical schools. We may have general practice residencies in a thousand or two hospitals throughout this country but if we fail in a solution of the hospital privilege problem we have failed completely because our young students will still drift into a specialty. Conversely, we may settle all of the hospital problems but if the student and the intern have had no knowledge and no contact with the general practice of medicine he will still end up in a specialty. The program is multi-lateral. All phases must be developed if the American people are to be supplied with an adequate quantity of well trained general practitioners who will qualify to fulfill the requisites of the Academy's adopted definition. General practice is that area of medicine in those fields of diagnosis and therapy commensurate with his professional competence, assuming a total continuing responsibility of the

health of the individual or the family as a unit. When this has been accomplished and we have defined its content more adequately, the future of the general practice of medicine will not be a matter of conjecture.

To me, the signs are most encouraging. With leadership and with dedication there are few questions of such gigantic complexity that they cannot be analyzed and solved by reasonable, intelligent, well motivated men sitting together around a conference table. When the attitudes and the policies of our national medical organizations such as the Academy, the American Medical Association, and the Joint Commission on Accreditation of Hospitals have found their way into local hospital staff organizations, these problems which have loomed so large in the recent past will evaporate. This will be a process beneficial not only to the general practitioner and the specialist and to all of American medicine but to the too often forgotten man — the man who pays the bills — the patient.

I would like to leave you with this one thought. May your incomes go up. May your blood pressures go down. May your appetites be hearty, your digestion good, your cholesterols low and all of your ambitions high.

The Preceptorship Program*

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I appreciate very much the courtesy of your invitation to discuss with you some of the features of the preceptorship program in South Dakota. Since many of you have received reprints of a paper describing the mechanics of operation of our program, I shall confine my remarks to more general observations and objectives of the program.¹

There is nothing new about preceptorship programs. Indeed, Webster's Dictionary defines the "preceptor" as a practicing physician who takes an undergraduate medical student as an assistant

and gives him personal training in the practice of medicine. It is further identified that Woodrow Wilson is given credit for introducing the preceptorial system in collegiate education at Princeton in 1905. I prefer to go back much earlier in history to give credit to Hippocrates for, you will recall, it is spelled out in the Hippocratic Oath that the physician will and I quote "and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the art." It further should be recognized that the preceptorial system of medical education probably would be the most characteristic definition of the so-called diploma-mill medical schools which blanketed

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this country in roughly the period 1850 to the famed Flexner Report of 1911. Since this period was the low ebb from the standpoint of standard and quality of medical education that historically existed in this country, this, according to some, is sufficient reason to view with skepticism any preceptorial type of medical educational program.

Programs in Modern Era

Again, historically the first preceptorship program in medical education in the modern era at least is credited to the University of Wisconsin where the program was started in 1926. This was followed by Vermont in 1929, Duke University in 1938, and our own South Dakota School of Medicine in 1947. All other schools, and there are now about 30, have introduced programs since 1947.

There is no uniform annual compilation of those schools sponsoring preceptorship programs. The last published list was in the Educational Number of the Journal of the A.M.A. for 1954-55 which identified 24 schools having preceptorship programs. The most recent listing came to my attention just a few days ago in the article being prepared for *Medical Economics* authored by Dr. Amos N. Johnson of North Carolina who is President-Elect of your American Academy of General Practice. I know not the source of his information, but he does list 30 schools, again compared with 24 ten years ago. But if one identifies the schools on the two lists, it is evident there has been considerable switching on and off from the standpoint of these programs. Since the 1955 listing, or essentially ten years ago, nine of those schools have dropped the program and thirteen schools have added programs. Only two two-year schools have preceptorship programs at the present time. As indicated previously, our program has been running continuously since 1947 and about five years ago North Dakota added a preceptorship program, but it operates at somewhat of a different level in that the students are assigned to a hospital rather than in the private practice setting.

General Operation of Program

Now perhaps just a little description of the general mechanics of operation of the program would be in order for those unfamiliar with a program of this type. The overall administration of the program is out of my office, but I have two

members of our clinical staff, both internists, who serve in an advisory manner. One of these men is in charge of our physical diagnostic teaching program during the school year, and he is really the individual who does the evaluating, the correction of the case histories, and recently has done most of the personal visitation of the preceptors. We get together at the end of each program year talking over the observations that we have accumulated from a variety of sources and out of this comes some decisions in terms of policy of operation for the following year.

First, the selection of the preceptors. This is invariably done by consultation with doctors in the area and by personal visitation either by myself or one of the other committee members. Each year brings more requests from interested practitioners to participate in the program than we actually have students to assign. In a sense this is fortunate because on occasion we find it necessary to drop a preceptor through certain inadequacies in performance, or insufficient breadth of clinical practice. Students are on occasion assigned to a clinic but always an individual physician in the group is designated as the preceptor and held responsible for the student's program.

The Assignment of Students

We have one fixed rule that insofar as the in-state students are concerned, they shall not be assigned to a physician in their home territory. This even applies to doctors' sons even though the physician may make a request to have his son with him.

Secondly, knowing the personalities and capabilities of both the physicians and students makes it relatively easy to select students who would do well with a particular physician or in a particular environment. This poses no problem and indeed since this program has been operating now some seventeen years, I can think of no more than two or three cases where the student and the preceptor simply found it impossible to meet on common ground.

Prior to the start of the program, the student body is lectured on the general mode of operation on the program and in particular their responsibilities. Each student is presented with four weekly report sheets. Space is provided to have the student list the number of cases observed during the week and characterizing them in terms of surgery,

medicine, pediatrics, etc.; the number of clinical laboratory examinations performed by the student; the number of hours spent with the physician; and finally space afforded for comments. This is the most valuable category of all, and the students make full use of the opportunity to offer frank statements on their experiences. The weekly report form is returned to my office along with a selected case for which the student has had the complete responsibility of performing the physical examination and recording the history. Physical diagnosis *per se* is considered to be the primary educational objective of the program. These case histories are then referred to a professor of medicine on our staff for his correction, and grades recorded. They are then returned to the student who on occasion will refer it back to his preceptor and I assure you that at times, with the corrections spelled out on some of these histories, they become a real educational experience for the physician as well.

The student is also provided a little notebook in which he has an opportunity to maintain a daily log. The student is invited to use his own ingenuity in the content of this log and some of these are truly gems in terms of their translation of the experience that this student is enjoying. Many of these make truly fascinating reading. At the end of the program, namely one month, each preceptor is sent a form with several categories of information in which we ask his evaluation of the student. Invariably, the preceptor will add comments which become very helpful to us in terms of further counseling these students. We make an effort to talk with each student on his return and get his evaluation of both the preceptor and the program in the given locality.

It should be noted that the preceptor is completely responsible for the housing and maintenance of the student while assigned to him. We encourage whenever possible that the student be assimilated within the family and reside in the home. Although this cannot be realized in every instance, we do feel this association to be so important that we urgently recommend it whenever possible.

Criticisms of Program

Now what are some of the pros and cons to be debated on any preceptorship program? It is no secret that opinions and even feelings can get

quite partial either for or against a program of this type. Our own situation differs noticeably from preceptorship programs in the four-year school since it comes at the end of the sophomore year.

Some educators have voiced criticism of a program of this type coming as it does at the end of the sophomore year. It is argued that the student does not have a sufficient depth of knowledge of clinical medicine to permit the preceptorship to be a full educational experience equivalent to what the student would receive in the clinical teaching environment. While agreeing to this position, at least in part, our own evaluations of the program over several years rather convinces us that there are ancillary benefits, to be referred to later, which outweigh the aforementioned criticism.

Secondly, concern is voiced that since these students have not been introduced to the full scope of scientific medicine, characterizing their clinical years of training, they are incapable of exercising discrimination between standards of quality of medical care and services provided by the physician population. I should emphasize in the refutation of this argument that the two-year medical school has the only "built in" evaluating device in medical education. Since its product, the sophomore student, must transfer to four-year schools for the completion of their medical education, it becomes relatively easy for us to maintain annual reviews of our teaching program and admissions policies on the basis of the students' performances in their several schools of transfers.

We have been unable, now over several years, to identify any deficiency in a student's performance in clinical years which would be attributable to the preceptorship program. On the contrary, the student transfers are almost unanimous in their response that as a result of the experiences on the preceptorship program they enjoy certain advantages over their colleagues.

Range and Scope of Activities

Now what is the range and scope of activities that we expect these students to experience while serving a period of time with a preceptor? Obviously, first and foremost is the acquaintanceship the student will have with general practice and

all that is entailed therein. A very common reaction from our students particularly by the end of the first week on a preceptorship program is the statement "I am bushed." They find that being on call 24 hours a day is somewhat physically more demanding than sitting in the classroom for eight hours a day. More particularly they soon appreciate the "art of medical practice." As one preceptor reported, "We think this is a worthwhile program. It must help the student to know something about the problems of every-day practice of medicine before going to the larger institutions."

Business and Legal Aspects

We encourage the preceptor to introduce these students to the business aspect of medicine. I am impressed with the number of doctors that will actually show their entire financial reports to these students, their bookkeeping and collection systems, and of course all students become immediately aware of the role that health insurance is playing in the practice of medicine today.

Our school introduces the sophomore students to the legal aspects of medicine through a series of lectures offered by a professor from the University Law School. On the preceptorship program, however, the student becomes fully aware of what is represented in physician-patient relationships, the legal aspects of malpractice, the judgment and position that the doctor must frequently take in reference handling of discreet cases, the role that consultations may play in the protection of a physician's course of action on a case, and the procedures that are followed in committing patients to, for example, mental institutions.

Mentioning legal aspects does raise one issue which should be fully understood by preceptors, and this concerns the extent of liability for whatever medical services this student should perform. The AAMC has just completed a national survey of the incidence of legal cases arising from student services on externship. While the number is not great, and the program directors felt no great problem was represented . . . still, even one case is serious if it happens to involve you. Now, of course, there is no law to permit a student to practice medicine. This means the physician can and should be held responsible for whatever the student does. We attempt to give the preceptor

a little protection by appointing him annually to our staff as a preceptor, so that in a sense the degree of responsibility is shared by the school and state.

Role of Religion

The role of religion in medicine becomes a frequent experience for these students and I quote just a couple of cases that were represented this past year. I quote, "A very interesting experience in sitting in with the doctor and minister when he came to confer on the situation of the psychiatric case admitted last night." I quote more extensively from another case report, "Back to bed and just to sleep when I was called . . . emergency at 12. An eight year old girl, soot covered, lying on the emergency room table, no pulse and no breathing. A little boy was brought in burned from head to foot, both dead on arrival. The mother had lacerations on hand and wrist. I assisted Dr. A. with the emergency work. As I stood there and listened to the prayers of this mother, the title of the sermon I had preached that morning in Vermillion came back to me, 'Learning to Accept the Will of God.' It is much easier to preach about than to accept." This student incidentally served as a lay minister in a rural school while attending medical school.

The student also comes to appreciate in a firsthand manner the role of the physician in community affairs. I quote from one of the preceptor's reports on a student this year, "He attended numerous community projects and meetings and discussed freely the social medical problems in a small town."

Now admittedly the values one elects to assign to this range of experiences is much more subjective than objective in measurement. Many of these self-same experiences may be repeated manyfold by students in the large medical center in which they are about to enter for the completion of their medical study. But it is doubtful in my mind that the student will ever come under the influence of, or establish such a complete relationship with, any single faculty member as is represented between the student and preceptor during this one month of shared experience. I again quote from one student report, "In conclusion of this program, I have seen that medicine does not have to be impersonal. I have been with a dedicated man whose influence will continue throughout my

life as a result of his benevolent contribution to my very learned preceptorship program.”

Close personal friendships have developed from these associations and certainly in some instances students have been led back into our state for medical practice as a direct result of their preceptorship experience.

The preceptorship program offers still another contribution to these young physicians which is of important value but one frequently overlooked. I would define it as being the assistance that is provided the student in formulating his ultimate goals in medicine. The preceptorship provides the opportunity for the student to experience general practice while he is still in medical school. He is able to form an educated opinion by the time of his internship as to future interests in specialty versus general practice areas of medical services. The specialty orientation which characterizes modern education is essential to the training of high quality physicians. This should not preclude, however, an opportunity for a student to experience general practice, and this should properly occur during a period of medical schooling before final goals are crystallized. A preceptorship does provide such an opportunity.

Thus far my comments have been directed to the student's relationship to this program, but I emphasize the benefits are not entirely unilateral. There is ample evidence to suggest that both the preceptor as well as the medical school enjoy substantial benefits from the program. The preceptors commonly remark on the challenge they receive from the students. Indeed, the benefits to the physician are sufficiently substantial as to cause me to consider these students as sort of ambassadors of our medical school devoting some part of their time to postgraduate medical education. Recall that these students are able to bring to the physician the most recent biological concepts from the basic sciences in addition to a rather complete comprehensive knowledge of the fields of gross and clinical pathology. In addition, the students have been introduced through clinical lectures to the major specialty fields and while we never presume at this stage that they have competency in the differential diagnosis, they are readily conversant with the disease process and, perhaps most significant of all, an insatiable appetite to learn more. It is this setting then, namely the interplay between student and preceptor, that both parties find stimulating and educational.

Lastly, the school feels it is distinctly the bene-

factor through the operation of a preceptorship program. The extent of contact between the physician population and the medical school through these student assignments is quite substantial. For example, just a quick approximation of the number of physicians who had some contact with one or more of our 43 preceptees this past year would be in the neighborhood of 200, or nearly one-half of the active physician population of the state. Through these contacts the physicians are kept rather well informed on medical school activities. The liaison which must take place between the medical school administration and the preceptors in the normal operation of the program provides an easy environment for mutual discussion of problems of medical school operation. While one dislikes to place a monetary value on the matter of friendship, I think a tangible expression of the degree of interest the physician population has exhibited in the school is represented by their substantial record of contributions.²

Also, one cannot overlook the frequent occasion wherein needy medical students have received direct financial support from preceptors.

In general then we feel that the preceptorship program creates an environment between the physician population and the medical school which is mutually beneficial. We personally must appreciate the degree of enthusiasm as well as the time and effort expended by these preceptors on behalf of medical education. It is doubtful in my mind that these same benefits would accrue to all parties, namely student, preceptor, and school, in the absence of the preceptorship program. At least we have not considered abolishing the program to test the hypothesis. We do feel a constant evaluation of the program must be made to avoid complacency and to assure the best possible environment for the medical student.

In this context it is worth quoting from a recent article by a respected leader in medical education.³

“All of us must be interested in the future because we shall spend the rest of our lives there. It was Lincoln who said ‘If we could first know where we are and whither we are tending, we could then better judge what to do and how to do it.’ ”

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Excerpts From The "Handbook Of Obstetrics And Gynecology"*

By RALPH C. BENSON, M.D., *Portland, Ore.***

Carcinoma of the Cervix Diagnosis and Radiologic Treatment

Carcinoma of the cervix accounts for two-thirds of all female genital cancer. About two per cent of women under 40 years will develop cancer of the cervix if they live long enough. The average age of women with diagnosed invasive carcinoma of the cervix is 45 years. The discovery of the in situ stage of this disease is increasingly common after age 25 years. The risk of cancer of the cervix is reduced by celibacy and nulliparity. Cancer of the cervix is rare in Jewish women. Chronic cervicitis and possibly smegma may relate to the cause.

Only four per cent of cancers of the cervix are adenomatous; the vast majority are of the squamous type. Dyskeratosis and basal cell hyperplasia may be premalignant phases. Staging determines the extent of spread of cancer and helps to explain the complications such as urinary tract obstruction and fistula-formation.

There are no signs or symptoms of in situ cancer. When ulcerations and bleeding occur, the malignancy is definitely invasive. Ulcers of malignant nature often have a firm, raised margin and granular base. Eversion, erosion, infections (especially venereal disease and tuberculosis), and abortion of a cervical pregnancy must be differentiated from cancer of the cervix.

Vaginal smears are most helpful in the diagnosis of pre- and early-invasive cancer of the cervix. They are 95-98 per cent accurate in many laboratories. Once extensively ulcerated, however, biopsy is more accurate in diagnosis. Do cone biopsy and fractional D&C if in doubt regarding the site and invasive character of a lesion. Schiller stain helps in the selection of the biopsy sites.

Therapy: The Stockholm, Manchester and Paris techniques all aim at delivering approximately 8,000r to Point A by radium in 1-2 treatments within two weeks. X-ray therapy (preferably super-voltage given concomitantly over a four to

five week period yields a total dose of 7-8,000r administered through four ports. Point B will receive about 2,000r.

The over-all cure-rates are: Stage I 70-80 per cent; Stage II 40-55 per cent; Stage III 10-20 per cent; Stage IV 0-5 per cent.

A yearly gynecological examination with vaginal cytology for all women over 20 years of age would eliminate carcinoma of the cervix as a life-threatening disease.

Treatment of Carcinoma of the Cervix Complicated by Pregnancy

I. Radiological Therapy

1st Trimester:

Deliver 6,000r to the midplane of the pelvis through each of four ports. Concurrently, give two courses of intra- and paracervical radium totaling 7-8,000r to Point A. Await spontaneous abortion.

2nd Trimester:

Deliver intra- and paracervical radium therapy 4,000r to Point A. In seven-10 days, do an abdominal hysterotomy. Two weeks after surgery, begin deep X-ray therapy giving 6,000r through four ports in approximately five weeks. During the last week of therapy, repeat the previous radium dosage.

3rd Trimester:

Perform cesarean section at about 32 weeks. In seven to 10 days, begin five weeks of external X-ray radiation using four ports to a combined dosage of 6,000r. Give two courses of radium therapy one week apart, beginning during the last two weeks of X-ray treatment to a dosage of 7-8,000r to Point A.

II. Surgical Therapy

A Wertheim radical hysterectomy and pelvic lymphadenectomy may be done at any time during pregnancy or the puerperium by one specifically trained and skilled in this type of pelvic surgery.

* * *

Radical abdominal panhysterectomy and pelvic lymphadenectomy may be the procedure of choice if: (1) large uterine or adnexal tumors are pres-

*Published by Lange Medical Publications, Los Altos, Calif., 1964.

**Dr. Benson is Professor and Chairman of the Dept. of Obstetrics and Gynecology at the University of Oregon School of Medicine. The above excerpts were presented at the Seventh Annual Ruidoso Summer Clinic, Ruidoso, N. M., July 20-23, 1964, sponsored by the New Mexico Chapter of the A.A.G.P.

ent, (2) the patient has chronic salpingitis, (3) small or large bowel adherence to the uterus or neighboring structures, (4) the patient is less than 35 years of age and demands ovarian conservation, (5) the patient refuses or abandons irradiation but is a good surgical risk, and, (6) the cancer of the cervix is radioresistant.

Carcinoma of the Endometrium Diagnosis and Treatment

Cancer of the endometrium is the second most prevalent female genital malignancy. Three times as many nulliparas develop this cancer as compared with multiparas. Twice as many private patients have this disorder as contrasted with clinic patients. The average age of women with endometrial cancer is 60-70 years. Many large-boned, meso- and endomorphic-type women have this disease. Obesity, hypertension and possible diabetes mellitus are associated with endometrial carcinoma.

Theories of origin of this neoplasm include (1) hereditary cancer-tendency plus estrogen stimulation, and, (2) focal pleomorphism. Atypical endometrial hyperplasia may be a precancerous lesion. Staging relates to the extent of the disease, its symptomatology and prognosis. Rule out other cancers of the uterus: carcino-sarcomas, mixed mesenchymal and other sarcomas, as well as pyometra due to cervical stenosis, myomas, functional ovarian tumors and ill-chosen hormone therapy. Expect endometrial carcinoma to spread to the ovaries, tubes, cervix, vagina, peritoneum, pelvic glands and systemically.

The symptomatology includes abnormal vaginal bleeding in 80 per cent—usually at or after the menopause. The diagnosis requires a high degree of suspicion for cancer. vaginal smears (accurate in only 50-80 per cent even with all slides reviewed). Use endometrial lavage, nylon brush, aspiration biopsy, and fractional D&C for better cytology results.

Therapy is basically surgical, but preliminary irradiation has increased salvage in all but the very early cases. X-ray therapy may be better but intracavitary-intravaginal radium treatment to 6,000 mgm. hr. dosage is effective with extrafascial panhysterectomy and bilateral salpingoophorectomy in four to six weeks. Pack the cervix preoperatively. In recurrent cancer, use irradiation therapy, if feasible, and/or massive doses of progestational hormone. Prognosis: League of Na-

tions 1959 report of five-year arrest in Stage I, group 1 = 72 per cent, and group 2 = 46 per cent. In Stage II, the five-year survival was but 22 per cent. Prophylaxis requires periodic gynecological examination including cytology for *all* women.

Carcinoma of the Ovary Diagnosis and Treatment

The most common malignant ovarian neoplasm is the serous-pseudo-mucinous cystadenocarcinoma which accounts for 70 per cent of all ovarian tumors. No hormones are produced by these cancers. Women afflicted are between 45-65 years old. There is no specific or group prevalence. The ratio of serous to pseudomucinous cystic tumors is 1:1.

Theories of pathogenesis of this type of tumor include abnormal development from a teratogenous ovarian rest and inversion of totipotent ovarian "germinalepithelium." The malignant trend of these tumors is from a cystoma to a cystadenoma to a cystadenocarcinoma to a semi-solid ovarian cancer. About 50 per cent of serous and five per cent of pseudomucinous cystadenomas become malignant. Cystadenocarcinomas have a tough parchment-like capsule and a very short pedicle; gritty psammoma bodies are often included.

The symptomatology is due to the size, weight and the situation of the tumor(s), as well as the presence of intraperitoneal or intrathoracic fluid. Cystadenocarcinomas of the ovary are "silent tumors." Patients have slowly increased girth, paradoxical weight gain, anorexia, easy fatigue, shortness of breath and constipation. Outline the tumor(s). Don't aspirate cysts but obtain ascitic fluid for cytology. Secure X-ray films of abdomen and thorax. Consider in differential diagnosis benign tumors of the ovary, Demas-Meig's syndrome, secondary carcinoma. Remove all cysts 7 cm. diameter which persist for 90 days. Do a total hysterectomy and a bilateral salpingoophorectomy and omentectomy when cancer is likely or proved. Biopsy mass and give preoperative X-ray therapy, if tumor is extensive. In advanced cases, chlorambucil may be palliative.

Prognosis for five years arrest if tumor has spread beyond the capsule, if it is densely adherent or if it ruptures is only about 30 per cent. Require periodic gynecological examinations on *all* women for prophylaxis.

19th Annual Symposium On Cancer Research, Houston, March 4-6, 1965

"Developmental and Metabolic Control Mechanisms and Neoplasia" will be the subject of the Nineteenth Annual Symposium on Fundamental Cancer Research, to be held at The University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, March 4-6, 1965. Scientists from the United States and abroad will present papers on the latest developments in cancer research.

Dr. Darrell N. Ward, head of the department of bio-chemistry and chairman of the 13-member symposium committee at M. D. Anderson Hospital, has announced that the topics under discussion at the symposium will be: Biosynthesis and Control Mechanisms; Molecular Basis of Early Development; Molecular Basis of Later Development and Control; and Comparative Studies on Control Mechanisms in Normal and Neoplastic Tissues. Each of the sessions in the three-day symposium will be followed by a discussion period. The symposium is co-sponsored by The University of Texas Graduate School of Bio medical Sciences at Houston.

Assisting Dr. Ward's symposium committee is an external advisory committee, which has as members the following: Dr. Francois Jacob, from the

Institut Pasteur, Paris; Dr. Marshall Nirenberg of the National Heart Institute, Bethesda, Maryland; Dr. James D. Ebert, from the department of embryology at the Carnegie Institution of Washington, Washington, D. C.; Dr. Robert E. Eakin, professor of chemistry at the University of Texas, Austin; Dr. Val W. Woodward, department of biology, Rice University, Houston; Dr. James B. Walker from the department of bio-chemistry at Baylor University College of Medicine in Houston, Texas; and Dr. Van R. Potter, from the McArdle Memorial Laboratory, The University of Wisconsin Medical School, Madison.

The purpose of the annual symposia is to bring together scientists from the United States and abroad to review and exchange ideas on one facet of scientific knowledge related to cancer and allied diseases. One of the highlights of the three-day meeting will be the annual Bertner Foundation Lecture, which is to be presented by the recipient of the Bertner Foundation Award. This award is presented annually to a scientist who has made an outstanding contribution to the field of cancer research.

Inquiries may be addressed to Dr. Ward.

Indian Alcoholic Pilot Project

A pilot project on the Indian alcoholic problem which was conducted in McKinley county in 1962 under the supervision of William F. Sears, M.D., consultant psychiatrist, and Eugene Mariani, Ph.D., director of the Division of Mental Health, New Mexico Department of Public Health, has resulted in a special grant to the McKinley County Family Consultation Service for treatment and research in the problem of Indian alcoholics.

The National Institute of Mental Health, in awarding the grant, designated Dr. Sears and Dr. Mariani as director and co-director of the new project. In addition to a psychiatrist and psychol-

ogist, the staff will include an anthropologist, social worker, nurse, probation officer and interpreter. The sponsoring agency, with headquarters at Gallup, is headed by Howard O. Marsh as president of the Board of Directors. Miss Kathryn Jones, A.C.S.W., is the executive director.

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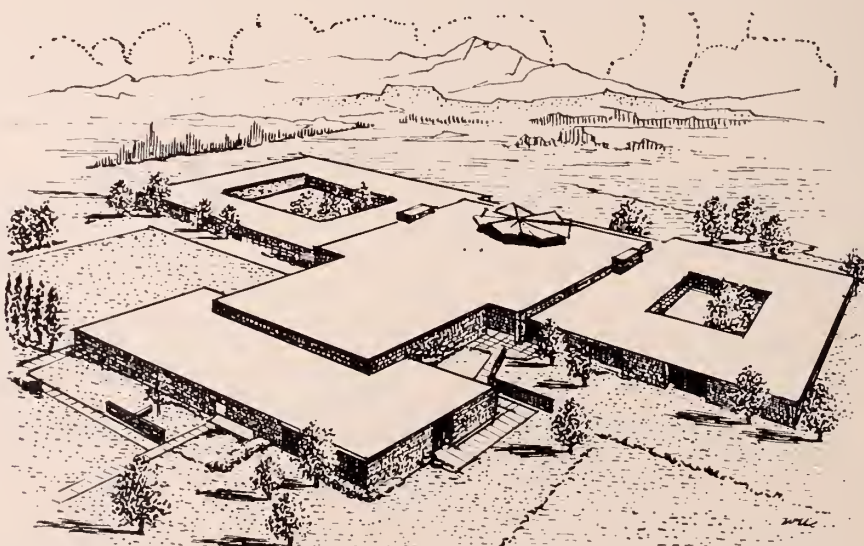
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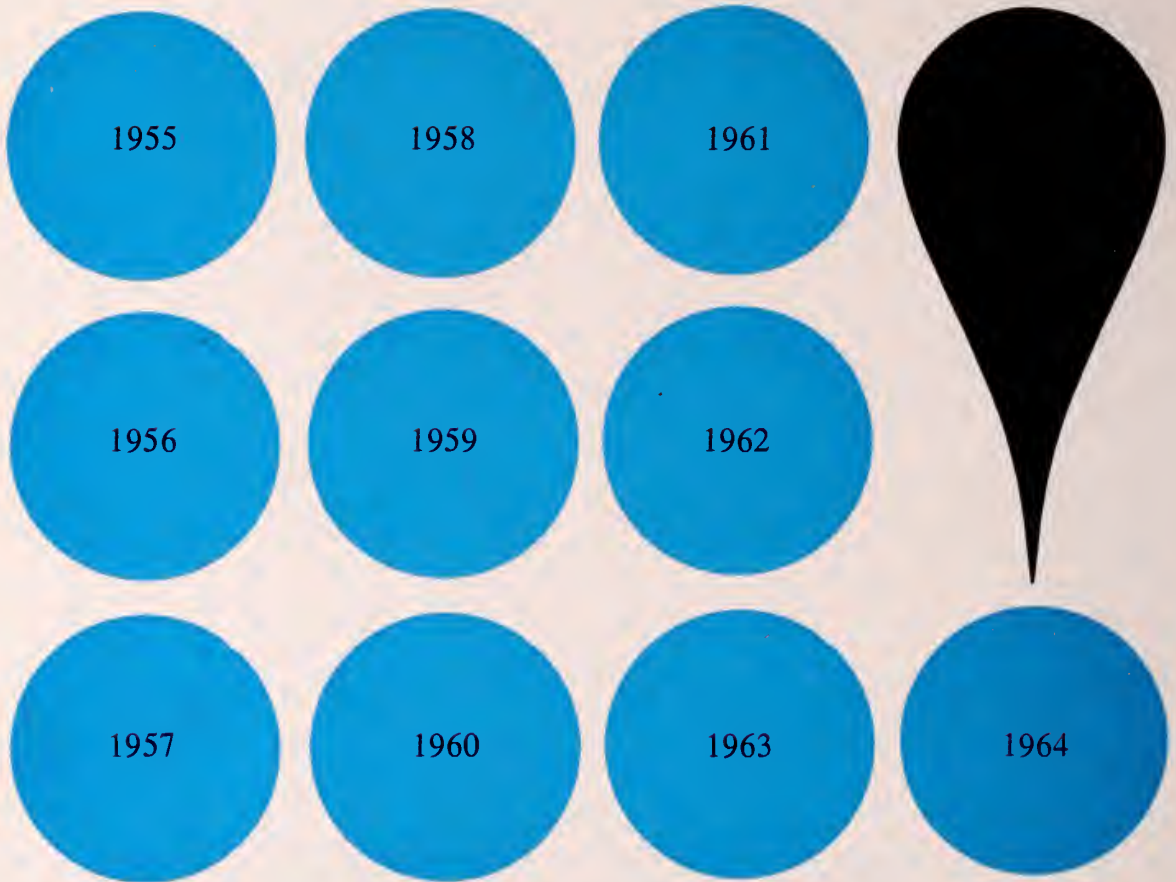
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Southwestern MEDICINE

Official Journal of the Southwestern Medical Association,
The Western Association of Railway Surgeons, Southwestern Dermatological Society,
Texas District One Medical Association, The Southwestern New Mexico Medical Society,
and El Paso County Medical Society

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November, 1964

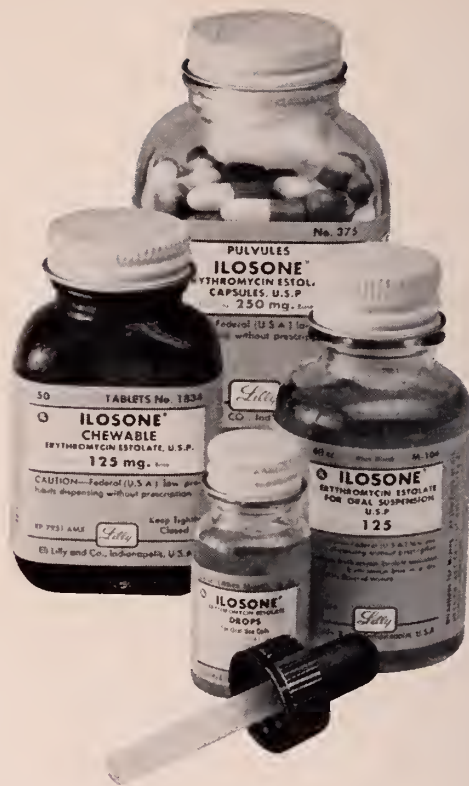
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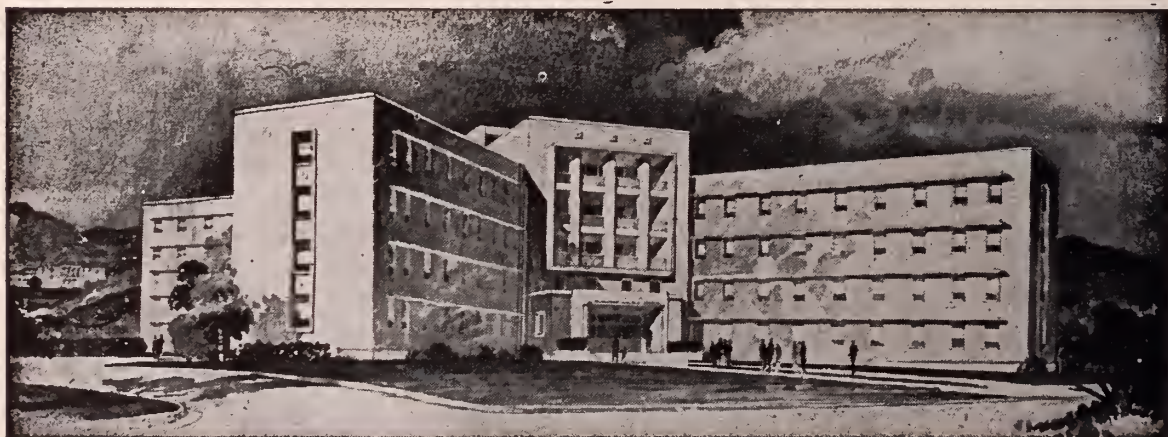
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Coming Meetings

Seventh Interim Session, House of Delegates,
New Mexico Medical Society, Los Alamos, Nov.
20-21, 1964.

83rd Annual Meeting of the New Mexico Medi-
cal Society and 12th Biennial Meeting of the

Rocky Mountain Medical Conference, La Fonda,
Santa Fe, May 9-15, 1965.

Eighth annual Ruidoso Summer Clinic, spon-
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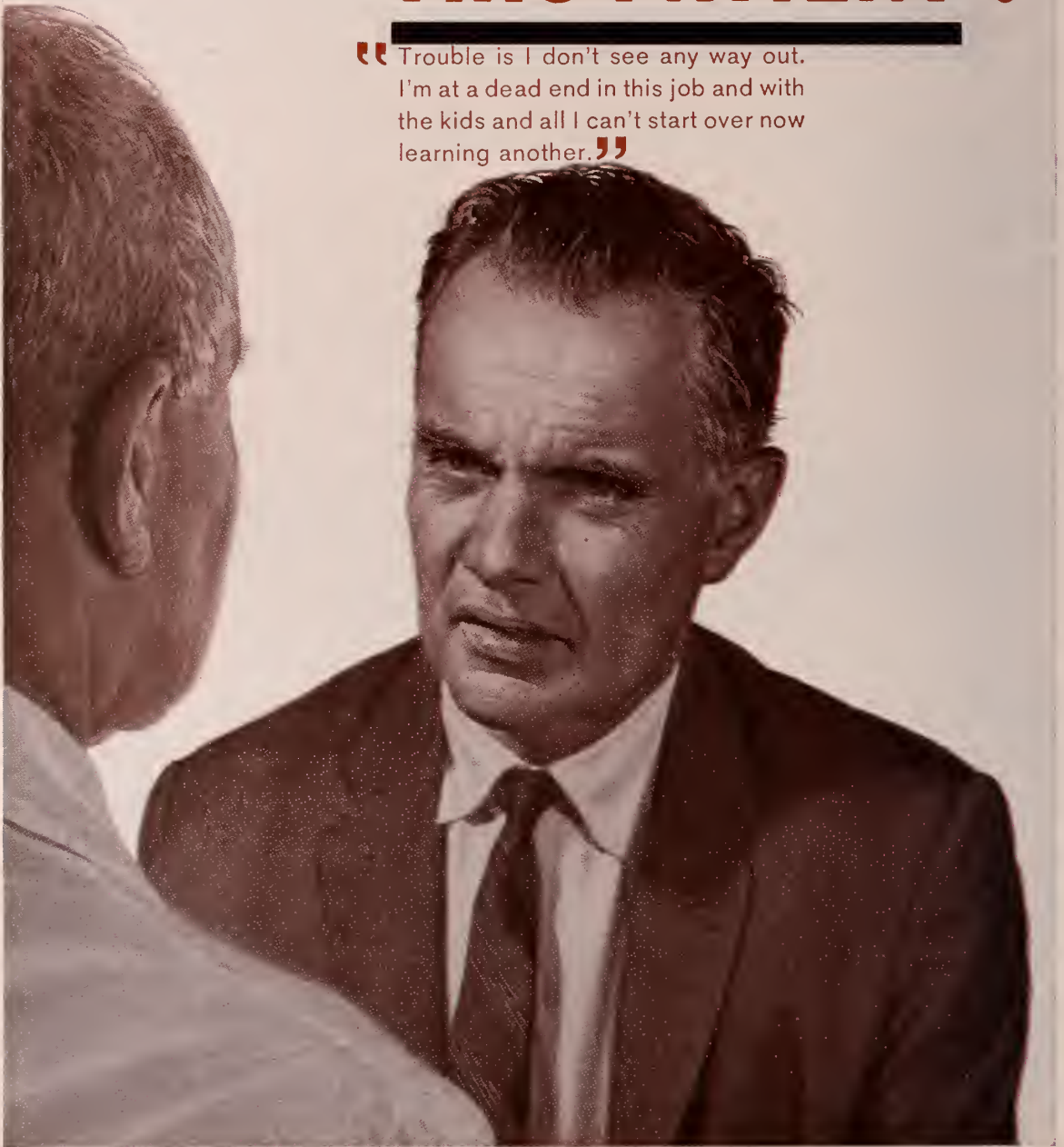
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Meprobamate—Drowsiness may occur and, rarely, ataxia, usually controlled by decreasing the dose. Allergic or idiosyncratic reactions are rare, generally developing after one to four doses of the drug. Mild reactions are characterized by an urticarial or erythematous, maculopapular rash. Acute nonthrombocytopenic purpura with peripheral edema and fever, transient leukopenia, and a single case of fatal bullous dermatitis after administration of meprobamate and prednisolone have been reported. More severe and very rare cases of hypersensitivity may produce fever, chills, fainting spells, angioneurotic edema, bronchial spasm, hypotensive crises (1 fatal case), anuria, stomatitis, proctitis, and anaphylaxis. Treatment should be symptomatic and the drug not reinstituted. Isolated cases of agranulocytosis and thrombocytopenic purpura, and a single fatal instance of aplastic anemia have been reported, but only when other drugs known to elicit these conditions were given concomitantly. Fast EEG activity has been reported, usually after excessive meprobamate dosage. Massive overdosage may produce lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse.
Dosage: Usual starting dose, one tablet three or four times daily. May be increased gradually to six tablets daily and reduced gradually to maintenance levels upon establishment of relief. Doses above six tablets daily are not recommended even though higher doses have been used by some clinicians to control depression and in chronic psychotic patients. **Supplied:** Light-pink, scored tablets, each containing meprobamate 400 mg. and benactyzine hydrochloride 1 mg. *Before prescribing, consult package circular*



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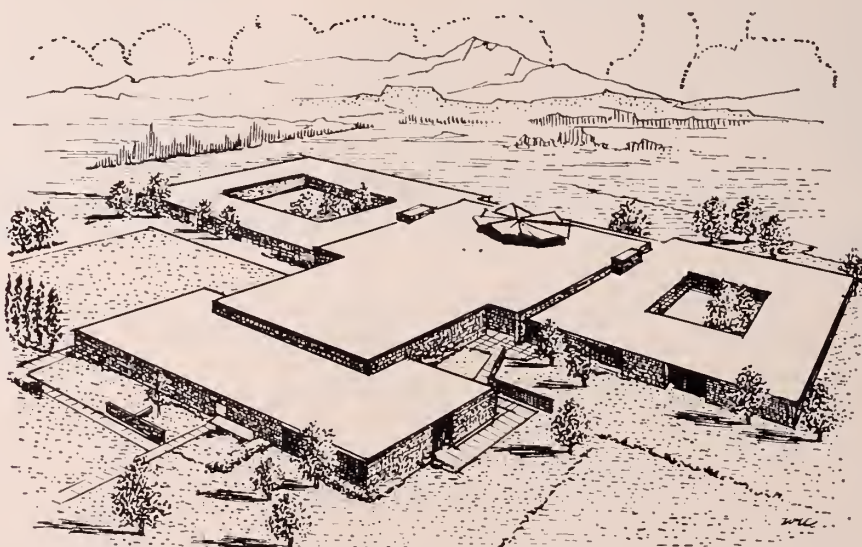
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Administer with caution in the presence of cardiac or peripheral vascular diseases and hypertension. **Contraindications:** Antihistamine sensitivity. Not recommended for use during pregnancy.

*Clinical report on file, Medical Department, A. H. Robins Co., Inc.
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PRECAUTIONS: Administer with caution in the presence of incipient glaucoma.

SIDE EFFECTS: Dryness of mouth, blurred vision, urinary difficulties, and constipation are rarely troublesome and may generally be controlled by reduction of dosage. Other side effects associated with the use of anticholinergic drugs include tachycardia, palpitation, dilatation of the pupil, increased ocular tension, weakness, nausea, vomiting, headache, dizziness, drowsiness, and rash.

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Bull. Am. Coll. Surgeons 49:101, 1964.

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N.M. Medical Society Interim Meeting

Los Alamos, Nov. 20, 21

The New Mexico Medical Society will hold its Seventh Interim House of Delegates meeting and Clinical program in Los Alamos, New Mexico, November 20 and 21, 1964.

Speakers at the Clinical meeting will be Dr. Thomas L. Shipman, Health Division Leader, Los Alamos Scientific Laboratory, Dr. C. C. Lushbaugh, Oak Ridge Institute of Nuclear Studies, Dean D. Meyer, Ph.D., Los Alamos Scientific Laboratory, Dr. Harry O. Whipple, Los Alamos Scientific Laboratory, Dr. Donald F. Hill, Rheumatologist, Tucson, Dr. Mack L. Clayton, Assistant Professor of Orthopedic Surgery, University of Colorado School of Medicine, and Dr. Dorothy M. Stillwell, Assistant Professor of Physical Medicine and Rehabilitation at the University of Colorado School of Medicine.

The meeting will be held in the Los Alamos Medical Center. The State Medical Society's Council will meet at 2 p.m. Nov. 19, and the Society's House of Delegates will assemble at 2 p.m. Nov. 20 and again at 2:30 p.m. Nov. 21.

Officers of the Society are Dr. Omar Legant, Albuquerque, president; Dr. Robert P. Beaudette, Raton, President-Elect; Dr. Thomas L. Carr, Albuquerque, Vice-President; Dr. Hugh B. Woodward, Albuquerque, Secretary-Treasurer; Dr. John F. Conway, Clovis, Speaker of the House; Dr. John T. Parker, Farmington, Vice-Speaker; and Dr. James C. Sedgwick, Las Cruces, AMA Delegate.

The meeting is being sponsored by the Los Alamos County Medical Society. Officers of the Society are Dr. Rufus E. Lee, President, Dr. J. C. Dotson, Vice-President, and Dr. Duane H. Drake, Secretary-Treasurer.

The scientific program is being made possible through the joint efforts of the Rehabilitation Committee of the New Mexico Medical Society, the New Mexico Chapter of the Arthritis Foundation and grants in aid from Geigy Chemical Corp., Riker, William H. Rorer, Inc., and Upjohn Co.

The program is as follows:

FRIDAY, November 20

- 8:30 A.M.** Registration
Health Research Laboratory
Presiding: Thomas L. Shipman, M.D.
9:00 Radiation Accidents, C. C. Lushbaugh, M.D.
9:40 Radiation Dosimetry and Decontamination, Dean D. Meyer, Ph.D.

- 10:20** Coffee Break
Host: Los Alamos Scientific Laboratory
10:35 The Hospital's Role in Care of Acute Radiation Syndrome, Thomas L. Shipman, M.D.
11:05-12:00 Panel Discussion and Questions From Audience
Panel Moderator: Thomas L. Shipman, M.D.
Panel Members:
H. O. Whipple, M.D.
D. D. Meyer, Ph.D.
C. C. Lushbaugh, M.D.
1:30 P.M. Registration
Recreation Hall
2:00 House of Delegates Meeting
Recreation Hall
3:30 Reference Committee Meetings:
Legislation and Public Policy
Administrative Matters
Miscellaneous Business
7:30 Cocktails and Dinner

SATURDAY, November 21

Rehabilitation of the Arthritis Patient

- 8:30 A.M.** Registration
Health Research Laboratory Building
Presiding: Freeman P. Fountain, M.D., Chairman, Rehabilitation Committee, New Mexico Medical Society
9:00 Medical Management of Rheumatoid Arthritis, Donald F. Hill, M.D.
9:40 Surgical Management of Rheumatoid Arthritis, Mack L. Clayton, M.D.
10:20 Coffee Break
Host: N.M. Chapter, Arthritis Foundation
10:35 Physical Management of Rheumatoid Arthritis, Dorothy M. Stillwell, M.D.
11:05-12:00 Panel Discussion and Questions from Audience
Moderator: Clarence Kemper, M.D.
Panel Members:
Donald Hill, M.D.
Mack Clayton, M.D.
Dorothy Stillwell, M.D.



DR. ANNIS—Dr. Edward R. Annis, Immediate Past President of the American Medical Association, center, spoke in El Paso September 26 to members of the El Paso County Medical Society, staff members of William Beaumont General Hospital, and physicians from District One of the Texas Medical Association. Above, left to right, are Brig. General James B. Stapleton, Commanding General of William Beaumont General Hospital, Mrs. Russell L. Deter, El Paso, President-Elect of the Texas Medical Association Auxiliary, Dr. Annis, Dr. H. D. Garrett, President of the El Paso County Medical Society, and Dr. Ira A. Budwig, El Paso, President-Elect of District One of the TMA.

Selection of Patients for Valvular Heart Surgery*

J. DAVID BRISTOW, M.D.**, Portland, Oregon

The suggestion could be made that decisions regarding cardiac surgery fall completely within the province of the cardiovascular surgeon and the cardiologist. This is not really the case, however, since patients with heart disease are first seen in the office of the family practitioner or internist and the first hint is often given there about the possibility of heart surgery. Though special studies such as cardiac catheterization or angiocardiology may be required preoperatively, the course leading to successful cardiovascular surgery begins in the office of the treating physician. This being the case, this paper will attempt to outline clinical criteria which may be employed for the preliminary selection of patients for valvular heart surgery.

An attempt should be made to answer three basic questions before a surgical decision is made. First of all, *how much better will the patient be after the contemplated surgery?* Will the results be equivalent to cure, will the patient be moderately improved, or is the outcome uncertain? The answer must be based upon the known results of surgery for the lesion in question. Second, *what is the patient's outlook without operation?* Does this patient's valve disease make him a candidate for sudden death? On the other hand, does the particular valvular abnormality characteristically progress quite slowly with only mild disability? These answers will be based upon knowledge of the natural history of the disease which the patient presents. Finally, *what is the risk of surgery in relation to the risk of the disease?* It is not justifiable to operate on certain trivial hemodynamic abnormalities when the risk of the disease to the patient is

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slight. On the other hand, an appreciable surgical mortality risk may be accepted by the patient and the surgeon when the ultimate chance for an excellent result is high and when the untreated disease has a dismal prognosis.

It becomes apparent that the patient's history of disability is a crucial factor in evaluating him as a surgical candidate. Though objective studies, such as cardiac catheterization, will often define disability in objective hemodynamic terms, the basic purpose of the proposed operation will be to alleviate symptoms of concern to the patient and improve his outlook for longevity. When the history is combined with the physical findings, the electrocardiogram and standard chest radiography, a tentative decision concerning the advisability of cardiac surgery can be made in most patients with valvular heart disease.

Pure Mitral Stenosis

At an early stage the patient may have no symptoms at all and the disease will be recognized by a loud first heart sound at the cardiac apex, the characteristic diastolic murmur and perhaps an opening snap of the mitral valve. Nothing further needs to be done about a decision for cardiac surgery at this time. The patient does not have need for operation if, 1) he is a reliable historian, 2) there is no evidence of pulmonary hypertension (shown by a loud pulmonary valve closure sound, a right ventricular thrust or right ventricular hypertrophy by electrocardiogram), and 3) there is no evidence of pulmonary or systemic congestion. This type of patient has normal sinus rhythm, a normal electrocardiogram and perhaps a normal chest x-ray. In our clinic such a patient would be followed at intervals if all of the foregoing criteria were met. It must be pointed out, however, that some patients will minimize their symptoms and will have physical or laboratory evidence of significant mitral stenosis while denying any disability. In this situation cardiac catheterization may be done in order to help prove the degree of severity. Though patients with completely asymptomatic mitral stenosis do exist, most of those who are seen in the physician's office have symptoms.

The patient's symptoms are directly related to the mitral valve obstruction and the resulting high pressure in the left atrium, pulmonary vein, pul-

monary capillaries and arteries. A higher driving force (left atrial pressure) is required to achieve blood flow across the mitral valve. With time there is the development of increasing pulmonary hypertension, atrial fibrillation and right ventricular failure. Cardiac cirrhosis can occur in some patients as a late manifestation of the disease due to severe systemic venous congestion, relative tricuspid insufficiency and right ventricular failure. There is an opportune time for operation between the phase in which the patient has no symptoms and this terminal stage of right ventricular failure. The latter time is undesirable because surgical risk has increased greatly and the results of operation will not be as good. In our opinion mitral commissurotomy is indicated when the patient is in functional Class II or III of the New York Heart Association scale.¹ That is, he or she has symptoms with mild to moderate exertion such as light housework.

At this point it might be well to try to answer the original questions posed concerning patient selection. How much better will the patient be after operation? Closed mitral commissurotomy produces excellent improvement in most patients when they are chosen properly. The pulmonary congestive symptoms are relieved and if congestive failure is present preoperatively, it is generally also relieved after commissurotomy. These statements are usually true if the patient does not have gross mitral valve calcification and hasn't significant mitral insufficiency. What is the outlook without surgery? For the patient with symptoms the course is that of progressive worsening of dyspnea, orthopnea and congestive heart failure. If he has normal sinus rhythm at the time he is seen, it can be predicted that atrial fibrillation will eventually occur and with it comes the hazard of systemic emboli due to left atrial thrombus. Permanent pulmonary hypertension due to damage of the small pulmonary vessels is another complication which is probably related to the duration of the disease. What is the risk of operation? In our hospital the operative mortality rate for closed mitral commissurotomy is 2 per cent. This is clearly less than the symptomatic and mortality risks of the disease. Because of generally good results and the low operative mortality, we feel that closed mitral commissurotomy is the operation of choice for patients with pure mitral stenosis who do not have gross valvular calcification of any significant mitral insufficiency.

In summary then we can conclude that surgery can be tentatively recommended in mitral stenosis when the physical findings indicate the existence of the disease and when the patient has a valid history of symptoms, even if only of recent onset. This then is the stage at which cardiac catheterization can be decided upon. Opinions vary as to whether or not all patients with pure mitral stenosis should have cardiac catheterization preoperatively. In our hospital nearly all such patients are studied for several reasons. The most important is to define quantitatively the severity of the disease. As a rule catheterization is not performed to confirm the presence of mitral stenosis but rather to provide objective evidence of its severity. Another important function of the procedure is to serve as a baseline for postoperative comparison if the patient does not do well after operation. Finally, other occult valve disease can be identified at catheterization. We have found organic tricuspid valve disease unexpectedly and this has an important influence on the prognosis as well as the extent of operation. Finally, when catheterization has confirmed the fact that hemodynamically significant mitral valve disease is present, surgery can be confidently recommended. It is of extreme importance that operation be advised before the patient has progressed to the terminal stage of the disease with chronic water retention, atrial fibrillation and the other complications of mitral stenosis which make the future uncertain even if commissurotomy is then elected.

Open Mitral Valve Surgery

Thus far we have described pure mitral stenosis. Many patients have pure or predominant mitral insufficiency, or mitral stenosis with more mitral insufficiency than will permit a satisfactory closed commissurotomy. In addition there is the patient with mitral stenosis with severe valvular calcification. These problems introduce new considerations in terms of operative indication. Surgical mortality and morbidity are importantly higher for open mitral valve surgery since cardiopulmonary bypass is necessary and the patient may well require mitral valve replacement. The operative risk for mitral valve replacement with a ball valve prosthesis is about 15 per cent though open mitral commissurotomy and mitral valve annuloplasty, when applicable, have a lower risk. But the fact remains that the operative mortality is greater

for either mitral valve replacement or mitral plastic operations and thus surgery cannot be justifiably recommended in the earliest stages of the disease.

We then have to consider the natural course of the disease and decide when to intercede. Later, the surgical risk increases as the patient becomes more disabled. In addition the results are probably not as good, though the limits of operability have not yet been clearly defined. The fact remains there is a persisting myocardial inadequacy in certain patients after long standing mitral insufficiency, and residual pulmonary hypertension may be a problem after the best of mitral surgery. On the other hand, early in the disease the treatment is of more hazard to the patient than the disease itself if he has little disability and the lesion is not severe.

The desirable time to find, then, is when the patient has symptoms which are not simply trivial limitation of exertion, when he has evidence of some cardiomegaly (particularly in the presence of mitral insufficiency) but far from extreme dilatation of the heart, and evidence that the symptoms and findings of the disease are progressing. The best recommendation for the patient will be for surgery long before he has reached Class IV with symptoms at rest and severe cardiomegaly. Most often surgery will be recommended when the patient is in the late part of Class II or early part of Class III of the New York Heart Association criteria. This means then that the patient has symptoms with modest exertion. With progression of the disease the mortality risk from the disease itself will be higher as well as the probability of complications such as left atrial thrombosis and systemic embolism, severe pulmonary hypertension, and intractable heart failure. As surgical techniques and results have improved, we find that open mitral surgery is being done at earlier stages of mitral valve disease. With perhaps a little more time, there will be a significant reduction in the mortality risk for this type of surgery.

The development of open heart techniques for mitral valve surgery and the availability now of a ball valve mitral prosthesis have produced results which are strikingly good in most patients. Some individuals do not return to completely normal cardiovascular function, but the vast majority show marked improvement in hemodynamic function

and alleviation of symptoms.^{2,3}

Aortic Stenosis

The spectre of sudden unexpected death is in the background of all patients with severe aortic stenosis. Therefore it is essential to recognize such patients and to sort out those with serious tight stenosis as opposed to those with trivial disease. The patient with serious aortic stenosis may do reasonably well without congestive heart failure and with only modest limitation of exercise for some time. But such an individual will tolerate intercurrent illness poorly, noncardiac surgery badly, and remains a candidate for sudden unexpected demise.

The problem, of course, is mechanical obstruction at the aortic valve with the result that left ventricular pressure must be exceedingly high. There will be a systolic pressure drop across the aortic valve which in hemodynamically important cases will usually range from 50 to 140 mm Hg. The compensation for this disease is left ventricular hypertrophy in order for the ventricular muscle to generate these high pressures. In the selection then of patients for surgery the effects of this hemodynamic problem are searched for.

In the history the patient may tell of syncope on exertion. This is an ominous sign of serious stenosis. Angina pectoris commonly occurs without coronary artery disease in the presence of aortic stenosis, though in men over the age of 40 both diseases may well be present. Patients with aortic stenosis may have dyspnea without congestive heart failure. On physical examination a systolic thrill, a palpable or audible 4th heart sound, a single or paradoxically split second heart sound are all indicative of important aortic stenosis. The typical heart murmur is of ejection type and is often heard best along the left sternal border. There may be a forceful left ventricular apex beat which indicates important left ventricular hypertrophy.

Left ventricular enlargement by x-ray or by electrocardiogram is a helpful sign of serious stenosis. But the electrocardiogram and x-ray can fail to show striking changes and yet significant stenosis exist. Thus the patient with physical findings of important aortic stenosis is a potential surgical candidate and such individuals most often will require left heart catheterization for a final surgical decision.

The teenager and occasionally the young adult

with congenital aortic stenosis can have a successful open aortic commissurotomy. Nearly all other patients with serious valvular aortic stenosis will require valve replacement. This is necessitated by the gross pathologic destruction of the valve and inability to produce a lasting result by plastic or debridging operation on such valves. There has been steady improvement in the mortality rate for aortic valve replacement and the mortality risk is about 7 per cent for replacement of the aortic valve with a ball valve prothesis.

The clinical and hemodynamic results of aortic valve replacement with a ball valve prosthesis are very good.⁴ Pressure gradients across the aortic valve are completely or almost completely relieved and consistent improvement in left ventricular function is found. Symptoms of dyspnea, angina and syncope usually disappear after operation and exercise tolerance is considerably improved.

Aortic Insufficiency

In this disease the left ventricle pumps a very large stroke volume. It ejects a volume which will remain in the aorta as forward blood flow as well as the volume which will regurgitate back into the left ventricle. Significant aortic insufficiency then is of necessity associated with left ventricular enlargement. This enlargement is determined clinically by palpation of a diffuse apex beat which is displaced to the left, by chest films and by the electrocardiogram which usually will display left ventricular hypertrophy.

The course of the disease is sometimes surprising. A patient with a bounding pulse, wide pulse pressure and other evidence of gross aortic insufficiency can do very well with few or no symptoms for many years. When it is measured, the cardiac output will be found to be normal at rest and often increases normally with exercise. There will be no elevation of pressures in the pulmonary circuit and the patient will be virtually free of important disabling symptoms. Surgery is best done when the patient has symptoms which are progressive in nature, but if possible before congestive heart failure begins. Some individuals have trivial aortic leaks without cardiomegaly and may never need surgical treatment. On the other hand the patient with the physical findings of gross aortic runoff who has exertional intolerance due to dyspnea, weakness, excessive fatigue, or has any evidence of congestive heart failure is a candidate for valve

replacement. In the hands of our surgeons rarely is it possible to obtain a good surgical result in gross aortic insufficiency unless the aortic valve is replaced. Since this requires open heart surgery, operation is done only in patients with symptoms as outlined above, but before the later stages when the surgical mortality becomes higher.

Multiple Valve Surgery

In the discussion thus far, isolated pure valvular disease has been described. It is apparent that many patients have bivalvular or even triple valve disease as well as combinations of stenosis and insufficiency of single valves. The most common bivalvular combination is aortic and mitral. Occasionally tricuspid stenosis will be seen with one or the other of these. Such patients can be successfully operated upon though at the present time the surgical mortality rate may be somewhat higher than in isolated valve disease. This is related to the fact that such patients are more seriously ill preoperatively as a rule and that a more prolonged operation is necessary. However, it has become

apparent in the last two years that some patients cannot have their symptoms relieved unless two or even three valves are corrected surgically and that a good result is obtainable. Most such patients will require cardiac catheterization before surgery and may require as many as three valves being replaced with ball valve prostheses. Once again the philosophy is to recommend operation before the patient has progressed to the preterminal stage of his illness and yet to avoid operation until significant symptoms have developed.

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Thrombocytopenic Purpura*

PAUL HUCHTON, M.D., *El Paso*

Definition of Purpura

By definition, purpura is a bleeding disorder which has skin and mucous membrane hemorrhage, with or without bleeding into internal organs. Thrombocytopenic purpura is that type which is due to either quantitative or qualitative platelet abnormalities.¹ It is an uncommon disease in children,² very rare in Negroes.

There are many cases of thrombocytopenia, and these shall be amplified later. However, several general points shall be discussed before going on to these more detailed considerations.

First of all, much can be learned about platelets from a smear of peripheral blood with Wright's stain. Although not as precise as actual platelet counting, this method, subject to less technical error, is used as a guide. Certainly a satisfactory and universally accepted method of platelet counting is that utilizing Rees-Ecker solution, and counting the platelets directly in the "Red Cell" area of the counting chamber. Normal values are 150,000 to 450,000.³ A more sophisticated and accurate method of counting platelets as described by Brecher, utilizes the phase microscope whereby the counts are made directly. These tend to be slightly lower in neonates. They are produced at a rate of 100,000/mm³/day. The entire number in

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circulation can be replaced in 3-4 days. The average life span of human platelets is 8-9 days (in vivo). The number will be decreased in the first day of menstruation, will increase sharply with exercise and increase of altitude, as well as with epinephrine.

Secondly, our discussion of causes will be confined to those due to low platelet counts, and these are divided into two broad categories:

1. Symptomatic thrombocytopenic purpura.
2. Idiopathic thrombocytopenic purpura.

The former, symptomatic thrombocytopenic purpura, can be further divided into two groups:

1. Failure of production
2. Increased destruction

The latter, Idiopathic thrombocytopenic purpura, is also further subdivided:

1. Failure of Release
2. Increased destruction

A. Symptomatic Thrombocytopenia:

1. Under the first category, i.e., failure of production, are numerous items. Many of these are self-explanatory and will only be mentioned; others bear elucidation and will be further discussed wherever necessary.

a. Hypoplastic Anemia

1. Fanconi's Syndrome
2. Congenital Hypoplastic Thrombocytopenia

b. Infiltration of Bone Marrow

1. Neoplastic Diseases
2. Storage Diseases
3. R. E. System Diseases

c. Myelophthistic Anemias due to

1. Osteopetrosis
2. Myeloma, rarely

d. Deficiency States

1. Pernicious Anemia
2. Testosterone
3. Thyroid
4. Folic Acid
5. Severe Malnutrition

e. Toxic Suppression

1. Uremia
2. Hepatic Failure
3. Specific Drugs

f. X-Ray

2. Under the second category of increased destruction come:

a. Hypersplenism

1. Banti's Syndrome
2. Gaucher's Disease
3. Felty's Syndrome
4. Lymphomata
5. D. L. E.

b. Other Isoimmunological Diseases: D.L.E., Dermatomyositis, etc.

- c. Hemangioma: It has been known since 1940, that giant hemangiomata may be associated with a deficiency in platelets.^{5,6,7,8} The exact relationship between thrombocytopenia and the hemangioma remains obscure. Perhaps sequestration, and destruction occurs within the hemangioma. In support of this concept the regression of the hemangioma had been seen to be related to return of platelet counts to normal. More recently it has been demonstrated that simultaneous platelet counts from the tumor and the peripheral blood show a much higher concentration of platelets in the tumor blood vessels.

d. Infections:

1. Neonatal Sepsis
2. SBE
3. Typhus
4. Rubeola
5. Scarlet Fever
6. Smallpox

7. Infectious Mononucleosis:^{9,10} Rarely there is associated with infectious mononucleosis a decrease in platelets. As in that disease caused by rubella, the prognosis is generally good, with a rapid return to normal. Only those cases which have severe manifestations of purpura should receive steroid therapy.

8. Rubella: In this very common childhood disease, thrombocytopenia is a rare sequel.¹¹ The interval between the appearance of the rubella rash and onset of purpura, usually is 2-8 days

with peak on third day. The purpura is generally mild, with rapid fading, with usually a benign favorable outcome.

- e. **Thrombotic Thrombocytopenia:** With acquired hemolytic anemia, and under this, purpura fulminans, this syndrome has a triad of thrombocytopenia, severe hemolytic anemia, and transitory, bizarre neurological symptoms and signs.^{12,13} Pathological findings include hyaline thrombi in most organs and tissues. There often is an enlargement of liver and spleen. These patients tend to have greatly shortened erythrocyte survival rates. Under this same general category should come *purpura fulminans*, which can occasionally be accompanied by thrombocytopenia.¹⁴ This disease has a characteristic picture following one of the viral diseases, such as rubella, or following scarlet fever. It occurs in young people, who develop massive ecchymosis, chills, fever, prostration as well as hemorrhagic shock and cerebral symptoms. The lesions are usually found on the buttocks, extremities, and often progress to cause great loss of tissue, with sloughing and amputation of extremities or their parts. It is usually fatal, although several cases have been described wherein survival occurred with steroid usage.

f. **Massive Blood Transfusions**

- g. **So-Called Hemolytic-Uremic Syndrome:** This syndrome comprises three essential features of hemolysis, thrombopenia, and nephropathy. Often there are associated convulsions, other neurologic signs and symptoms. The disease process usually follows an acute diarrheal illness by several days. The course of the disease seems to be influenced by cortisone and splenectomy. There is usually hypertension. The outcome is not favorable, since thus far it has carried about a 29 percent to 50 percent mortality rate. No etiologic agent has thus far been identified.

- h. **Aldrich's Syndrome:** This is another triad syndrome, with eczema, thrombocytopenia, and recurrent infections.^{17,18} It is

sex-linked, recessive, and usually causes early death. It occurs in males, and is further characterized by a uniform lack of isoagglutinins against heterologous blood groups. Attempts at treatment have to date been uniformly unsuccessful although some ameliorization of the eczema is afforded by estrogen-progestosterone therapy.

B. Idiopathic Thrombocytopenic Purpura:

The exact mechanisms causing this type of purpura haven't as yet been elucidated. However, much is known about the disease in so far as its manifestations are concerned. It is generally thought that there are several types of this disease, actually incompletely related. One is due to the absence of platelet stimulating factor (Shulman et al) and the other due to an immunological disorder involving platelet agglutinins, which may be familial.^{19,20} In newborns there are special considerations^{21,22,23}

A. Those due to maternal antibodies

1. With maternal purpura

- a. **Maternal chronic I.T.P.**—In this disease platelet antibodies persist in the mother despite prior splenectomy. They may be demonstrated in sera of both mother and infant. Such serum factors have been found to produce thrombocytopenia when infused into normal recipients. Such factors are capable of agglutinating or lysing platelets.
- b. **Maternal drug sensitization:** These mothers may have been exposed to any number of drugs, anyone of which will result in placental transfer of specific antiplatelet antibodies. Among these drugs are: quinine, quinidine, sulfonamides, Sedormid, para-aminosalicylic acid, certain anticonvulsants. And recently, thiazides have been implicated in such a situation.

2. Without maternal purpura:

- a. **Acute neonatal thrombocytopenia** may result from manufacture of platelet antibodies in the mother, which do not affect maternal platelets. It is in this group that several examples of familial purpura have been described.²⁴ This

latter syndrome seems to be sex-linked occurring primarily in males. In certain of these it has been demonstrated that the so-called platelet-stimulating factor is lacking. A spectacular response of platelet formation will occur with fresh plasma, which contains this factor. Another rare, but similar familial disease associated with thrombocytopenia, which can occur in neonatal life is the May-Hegglin anomaly.²⁵ In this disease the affected patients have giant platelets, or very bizarre platelets, which are cigar-shaped, elliptical, or have uneven and scant granulations. These people also have a peculiar pathognomonic cytoplasmic bodies in their neutrophils.

- b. Severe erythroblastosis fetalis is often accompanied by thrombocytopenia, possibly related to isoimmunization.
- c. Finally, even more recently, a new syndrome characterized by transient thrombocytopenia, and mild intestinal bleeding in epidemic proportions has been described in Baltimore.²⁶ Other clinical or hematologic disturbances were strikingly absent. During a period of four years, there was a continuous outbreak. In all of these cases the collective mortality rate despite therapy has been stated as lying between 10 and 29 per cent.

In older children, adolescents, and adults, the basic disease known as idiopathic thrombocytopenia is so well known that only a cursory review of its manifestations is in order here. However, the recent concepts in treatment will be reviewed. Traditionally, I.T.P. will by definition exclude from etiology all of the causes enumerated above. The current ideas as to pathogenesis deal with hormonal vs. mechanical factors. Although there is much evidence to support the hormonal immunological mechanism, circulating platelet antibodies have not been universally found. In any event, the illness occurs in two forms: 1) the acute self-limited, and 2) chronic protracted disease with occasional remissions. Its greatest frequency is in age groups 2-8 years. In children there is no sex difference in incidence. It is usually difficult to relate an infection or drug to its onset. There is occa-

sionally found an increased incidence of familial allergic manifestations. Manifestations include easy bruising, epistaxis, gingival bleeding, GI bleeding, hematuria, and vaginal bleeding. Splenic enlargement is usually characteristically minimal.

The *diagnosis* is generally fairly easily established. Of course, the platelet count is very low, usually less than 20,000. Bleeding time is prolonged, the Rumpel-Leed tourniquet test is positive, the clot retraction is poor. Prothrombin time and clotting time are normal. The bone marrow findings are specific: the megakaryocytes are normal or increased in number and show reduced platelet formation. In certain patients there may be paucity or almost complete absence of megakaryocytes. Despite these findings, there is nothing pathognomonic, and exclusion of other causes as listed above are best carried out.

Course and Prognosis

Generally speaking, a spontaneous remission occurs in 75 per cent of infants and children. The majority of children recover completely within 3 months, and 10-15 per cent recover within 4 to 6 months. About 10 per cent develop the chronic form and of these, about 85 per cent recover after splenectomy. The mortality rate is extremely low, and of course most of the concern for urgency stems from CNS hemorrhage.¹⁹

Treatment

Since the danger of serious hemorrhage early in the course is a possibility, and since 60 per cent of children will derive some benefit from increase in number of platelets, steroids are justified. However, the use of steroids has not reduced the incidence of chronic I.T.P. In fact, there is good evidence to show that prolonged use of steroids will suppress platelet formation and prevent a natural remission from occurring. Therefore, the recommended course is as follows:

Prednisone in a dose of 1mg./1 Kg./ day is used, and continued for three weeks. At the end of this time, the dose is tapered and discontinued, regardless of platelet count. If thrombocytopenia persists beyond three months, a second course is tried, again limited to four weeks. Persistence beyond six months raises the question of splenectomy. In the absence of significant hemorrhage, a definite time for splenectomy cannot be set.¹⁹ Adjunctive

measures are platelet transfusions, fresh whole blood, and lastly, fresh frozen plasma transfusions. The latter have been found to produce remissions in children refractory to splenectomy. The dose that has been employed is 30 cc/kg / 24 hours.

Summary

A brief resume of definition, differential diagnosis, and treatment of thrombocytopenic purpura has been presented. Some of the newer concepts of therapy have been stressed, and clarified.

1900 N. Oregon St.

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A Newer Method of Treating Snake Bite

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The diagnosis of snake bite may be obvious or difficult. Usually two characteristic fang holes in the skin are present. The snake should be identified and its venomous nature determined.

In first-aid of snake bite the first thing to do is to apply a firm tourniquet proximal to the bite and leave this in place for one hour. After one hour it is not likely that the tourniquet would be effective in preventing the spread of venom by vein or lymphatics, and a tight tourniquet left in place for more than an hour could do serious damage to the blood supply of the extremity—a matter of great importance in the ultimate recovery. Therefore, after one hour the tourniquet should be removed and not replaced. The patient should avoid exertion. He should rest while transportation to the nearest hospital is provided. As soon as possible the area of the bite should be packed with fresh-water ice directly against the skin, and this should be maintained continuously during the trip to the hospital. Incisions and suction should not be made by a lay person. More harm could be done by infecting a devitalized wound than probable good in getting concentrated venom out of the bite. Because of the danger of anaphylaxis to horse serum, antivenin should not be administered by a lay person.

Opiates should not be given for pain as these are additive to the lethal effects of the venom.

Emergency Room Treatment

In the emergency room of the hospital the fresh-water ice packing should be continued without interruption. If the wound can be under sterile drapes of an operating room within one hour of the bite, a surgeon may make simple, longitudinal, linear incisions through each fang hole extending through the deep fascia anticipating release of tension from future swelling. Sterile suction may be applied in an attempt to remove venom from the wound. After one hour it is doubtful if incisions or suction accomplish much. The tourniquet should be removed, otherwise more harm than good will result from loss of vascularity.

A severe systemic reaction may be due to intravenous envenomization with hemolysis or may be due to intoxication of the nervous system or may be due to anaphylaxis from previous sensitization. Adrenalin 1:1,000 injected intramuscularly is the most important measure that is capable of reversing a fatal issue. An air-way with oxygen and artificial respiration may be required. Blood transfusion may relieve shock or hemolysis anoxia. Cortisone may be beneficial. Demerol or other opiates should not be given.

Cryotherapy, or refrigeration by packing in fresh-water ice, is probably more effective in preventing the spread of venom in the tissues and more effective in stopping the enzymatic, proteolytic action of the venom than any other method. Cryotherapy does not interfere in any way with any of the classical treatments for snake bite, and cryotherapy is effective in all species of snake bite and, indeed, in all forms of envenomization.

The method was first advocated by Dr. Herbert L. Stahnke of the Department of Zoology, Arizona State University, Tempe, Arizona, and he has been a leader in research on envenomizations. It is important that fresh-water ice be used, as salt water ice would freeze the tissues and result in frostbite. With warm blood flowing through the tissues, fresh-water ice will lower the temperature of the tissues only to a few degrees above freezing. No harm will result to the tissues, except that the method is contraindicated in Raynaud's Disease. The ice can be packed directly against the skin, and no damage will result to the skin. A tourniquet should not be present during cryotherapy.

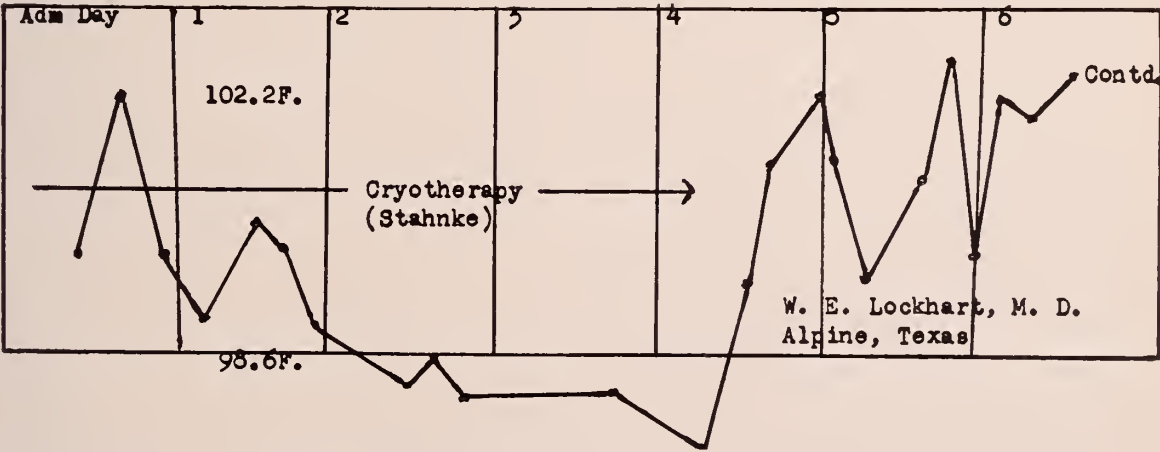
The fresh-water ice should be applied continuously and without interruption for six days and six nights. Any interruption in the refrigeration will permit the enzymes of the venom to become active, and this will result in damage to precious nerve and muscle tissues with swelling, fever, pain and systemic intoxication. (See accompanying fever chart).

While the bitten extremity is packed with fresh-water ice directly against the skin, the remainder of the patient's body should be kept "uncomfortably warm" by the use of an electric blanket. This is important in order to prevent chilling and to assist the cells and fluids of the tissues in detoxifying and destroying and dispersing the venom at a gradual rate.

Antivenin is effective in neutralizing venom. It should not be given before scratch test, conjunctival test and intradermal test (in that order) have proved the absence of horse serum hypersensitivity. If for no other reason, antivenin must be given for medico-legal logic. It should be species-specific. Our present antivenin is not very satisfactory, and a method of producing antivenins of human origin (prison volunteers) could be more effective and safe. If given, the antivenin should be given in adequate dose. A small child requires a larger dose than a large adult. Best given intramuscularly, it may also be given intravenously or by infiltration at the site of the bite.

The patient may require sedatives, but most of the pain will be relieved by cryotherapy. Tetanus toxoid should be given to prevent tetanus. Antibiotics should be given to prevent or control infection in the wound.

Snake bite can be prevented on ranches and farms by keeping plenty of house cats, which devour field mice (the food of snakes) and are natural enemies of snakes. Boots and gloves reduce the risk in exposed occupations.



Ybarra, Donna L-A, Age 4, Big Bend National Park, October 6, 1963
Right foreleg. *Crotalus viridis*, "small Prairie Rattler," known to be toxic. No incisions. Tourniquet and ice-pack by Park Ranger. After first day no pain, no toxic symptoms, no swelling, no blebs. Laughing, playing with doll, eating, sleeping. On fourth day we doubted diagnosis and discontinued cryotherapy. Ice directly against skin. No maceration. Then swelling, pain, toxic blebs, fever, crying, anorexia. Antibiotics and analgesics. Recovery 12 days with slight fixation of flexor digitorum longus muscle and equinovarus. Antivenin. Tetanus toxoid. Brewster County Memorial Hospital, Alpine, Texas.

Residual Anti-Biotics Found in Food Products

DONA DEAN*, JOHN K. BENNETT, M.D.***, EDWARD L. BREAZEALE, M.S.*

Since the widespread use of anti-biotics in medicine, there have occurred many cases of sensitivity to the drugs. Such sensitivity can vary greatly in its intensity from a very mild erythema to an almost anaphylactic shock. Generally speaking, a person may be hypersensitive to one of the drugs, and not to the others. However, we have seen cases where the subject is reacting to the whole spectra of the drugs, with little if any difference shown between any of them. A case falling into the latter category is the one that produced the work reported in this paper.

The individual under study was hypersensitive, and reacted to many foods that he was consuming. It was noticed that certain cartons of eggs would cause a reaction, while a second would not. The same was true of milk, beef, mutton, poultry and others. Since the reactions were spotty, it did not seem as though the foods themselves were to blame, but rather that there was some foreign material in them to which he was sensitive. It is well known that many cattle feeds carry some form of an anti-biotic, as do chicken feed and many of the other prepared animal foods. It seemed logical that the foods from animals and poultry should be analyzed for the presence of these anti-biotics.

Symptoms Shown by the Patient

The symptoms as reported by the patient under study are listed below. These were consistent and uniform, becoming more severe following each exposure. The time of onset following ingestion was four to six hours, and the duration about 48 to 60 hours. On several occasions the patient had consumed foods that the laboratory reported positive for anti-biotics, and in each case they produced the reported symptoms.

1. Dull and persistent pain in arms, legs, feet, with sensation of tingling or "rushing of blood."

2. Dull and severe persistent pain and tenderness in joints, and sacro-iliac joints.

3. Numerous small hemorrhagic areas (about

size of a penny) on both thighs and arms, a slight skin rash on chest, and lower abdomen.

4. Mucus in stool and urine.

5. Diarrhea of varying degree accompanied by cramping in lower abdomen.

6. Flatulence and distention.

Methods

The methods used to detect the presence of anti-biotics were basically those outlined by Arrett and Kirshbaum, "A Rapid Disc Assay Method for Detecting Penicillin in Milk".¹ This method is also outlined in literature supplied by the Baltimore Biological Laboratories.² Briefly the method calls for dipping a standard sterile filterpaper disc into the milk sample, draining and then applying it to the surface of a nutrient agar plate that has been seeded with a culture of standard *B. subtilis*. At the same time discs of filterpaper that carry a known quantity of penicillin are also applied to the plates. They serve to act as a check to determine if the culture is sensitive to the penicillin and also to give a standard of sensitivity. The plates are then incubated for two hours at 37½°C and read for the presence of a halo around the discs. The halo represents the activity of the penicillin or some other anti-biotic. If the growth of the organisms comes up to the test discs it indicates that there has been no inhibition of the organism, and that there was no anti-biotic in the sample. The two standard discs carry 0.10 and 0.05 units of penicillin. In this way we can obtain a rough estimate of the quantity of penicillin present. However, in our studies we were only interested in the presence or absence of the anti-biotic. On those samples showing inhibition some of the sample was mixed with standard penicillinase, a specific for penicillin, and re-run. If on the re-run they failed to produce the halo, we were certain that the anti-biotic found was penicillin. If the halo was again produced we could report that there was some other anti-biotic present. No attempt was made to determine what the other anti-biotics were, since there were no specific enzymes other than penicillinase available at the time of testing. All plates

*Arizona Serological Labs, Tucson.
**721 N. Fourth Avenue, Tucson.

were read at two hours again, after 24 hours.

The method was slightly modified in the case of meats. The sterile disc was applied to the freshly cut surface of the meat, which was then applied to the plate. In the case of a positive reaction, some of the juices from the meats were collected and treated as milk. In our laboratory this modification proved very satisfactory. The plates were read in the same manner as for milk.

Sampling Methods

All of the samples, with few exceptions, were purchased from local stores. The analysis was then started within a few hours. The following list shows the samples tested over the period of August, 1963, to the end of January, 1964.

Table 1

Samples Collected for Analysis of Anti-biotics

1. Guernsey milk

2. Sweet butter

3. Eggs*

4. Poultry-whole

5. Lamb chops

6. Lamb shoulder

7. T-bone steak

8. Club steak

9. Buffalo meat*
10. Cheese-process

11. Yogert

12. Swiss cheese

13. Beef gelatine

14. Rib chop

15. Round bone chop

16. Chuck roast

17. Reindeer meat*

18. Turtle meat

*Shipped from out of state. Not all of the eggs were from out of the state, but about 25 per cent came from California.

Results

The results of the testing are given in Table 2 below. Since completing this part of the study we have examined 22 samples of fish, all with negative results.

Table 2
Anti-biotics Found in Foods August 1963-
January 1964

Food Sampled	Number Sampled	Total No.	Reactions %	Penicillin %	Other Than Penicillin %	Negative %
Milk	23	3	13.1	13.1	0.	86.9
Eggs	38	31	81.5	52.7	28.8	18.5
Butter	8	6	75.0	37.5	37.5	25.0
Poultry	29	9	42.8	42.8	0	57.2
Lamb chop	7	4	57.1	42.9	14.2	42.9
Lamb roast	10	9	90.0	60.0	30.0	10.0
T-bone steak	8	0	0.0	0.0	0.0	100.0
Chuck roast	6	1	16.7	0.0	0.0	83.3
Rib chop	6	0	0.0	0.0	0.0	100.0
Round bone chop	2	0	0.0	0.0	0.0	100.0
Chuck roast	2	0	0.0	0.0	0.0	100.0
Club steak	2	1	50.0	0.0	50.0	50.0
Cheese*	7	2	28.6	28.6	0.0	71.4
Yogert	2	1	50.0	50.0	0.0	50.0
Beef Gelatine	1	0	0.0	0.0	0.0	100.0
Reindeer meat	1	0	0.0	0.0	0.0	100.0
Turtle meat	1	0	0.0	0.0	0.0	100.0
Buffalo meat	1	0	0.0	0.0	0.0	100.0
Totals	146	67	45.8	32.2	13.6	54.2

*includes process and Swiss cheese

Discussion

The overall total of 45.8 per cent of the sampled foods showing the presence of an anti-biotic, with 32.2 per cent proving to be penicillin and 13.6 per cent some other anti-biotic is of interest. All were in detectable concentrations. It will be noted that the poultry products showed the highest number of reactors, with beef and lamb the lowest.

The reactions in the poultry products are brought about by the fact that the majority of the feeds are compounded with some form of an anti-biotic. They are added to the feed in order to keep down infection, and production up. They may consist of any of a number of materials, or a mixture of them. In our testing we found mostly penicillin. The high percentage in poultry may also be due to the practice of some poultrymen to keep the dressed birds in an anti-biotic prior to shipment. This will help preserve the carcass by keeping down spoilage.

The reactors in the mutton products can be attributed to feeding. However, some of the producers will wash the carcass in a penicillin dip. It will be noted that more reactors were identified as an anti-biotic other than penicillin in this group. This would lead us to believe that the material was fed to the animals, rather than being absorbed during the dressing process.

The "wild" meats all gave negative results. There were only three such samples tested, but we would expect negative results from this group.

Conclusions

Over the period of August, 1963, to January, 1964, this laboratory tested a total of 146 samples of food. Out of this number 67, or 45.8 per cent, showed the presence of some form of an anti-biotic. Of the total reactors 47, or 32.2 per cent, were confirmed as penicillin, and 19, or 13.6 per cent, as some anti-biotic other than penicillin.

The number of foods showing measurable concentrations of anti-biotics was high enough to warrant consideration of them by the medical profession as a source of allergic response.

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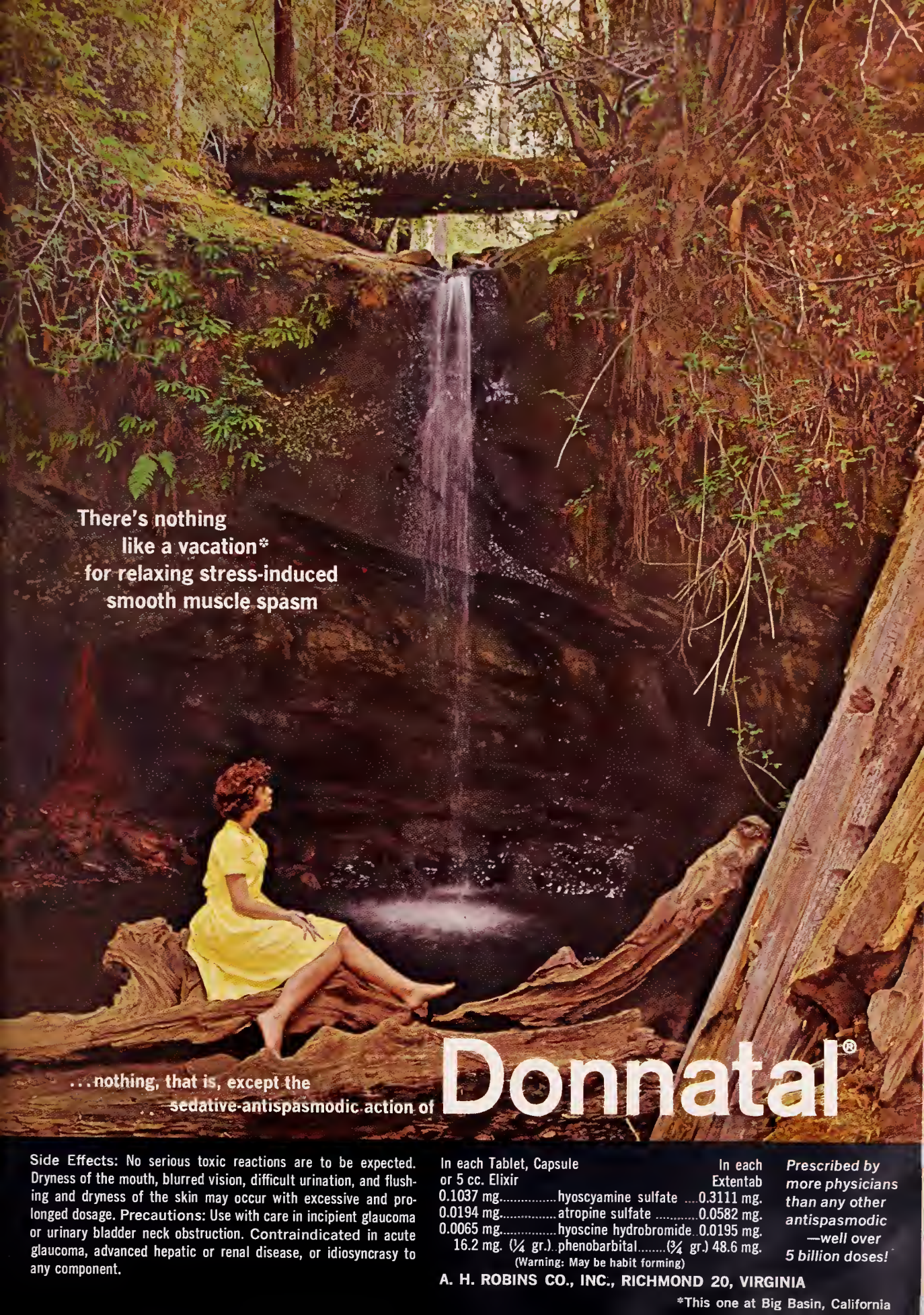
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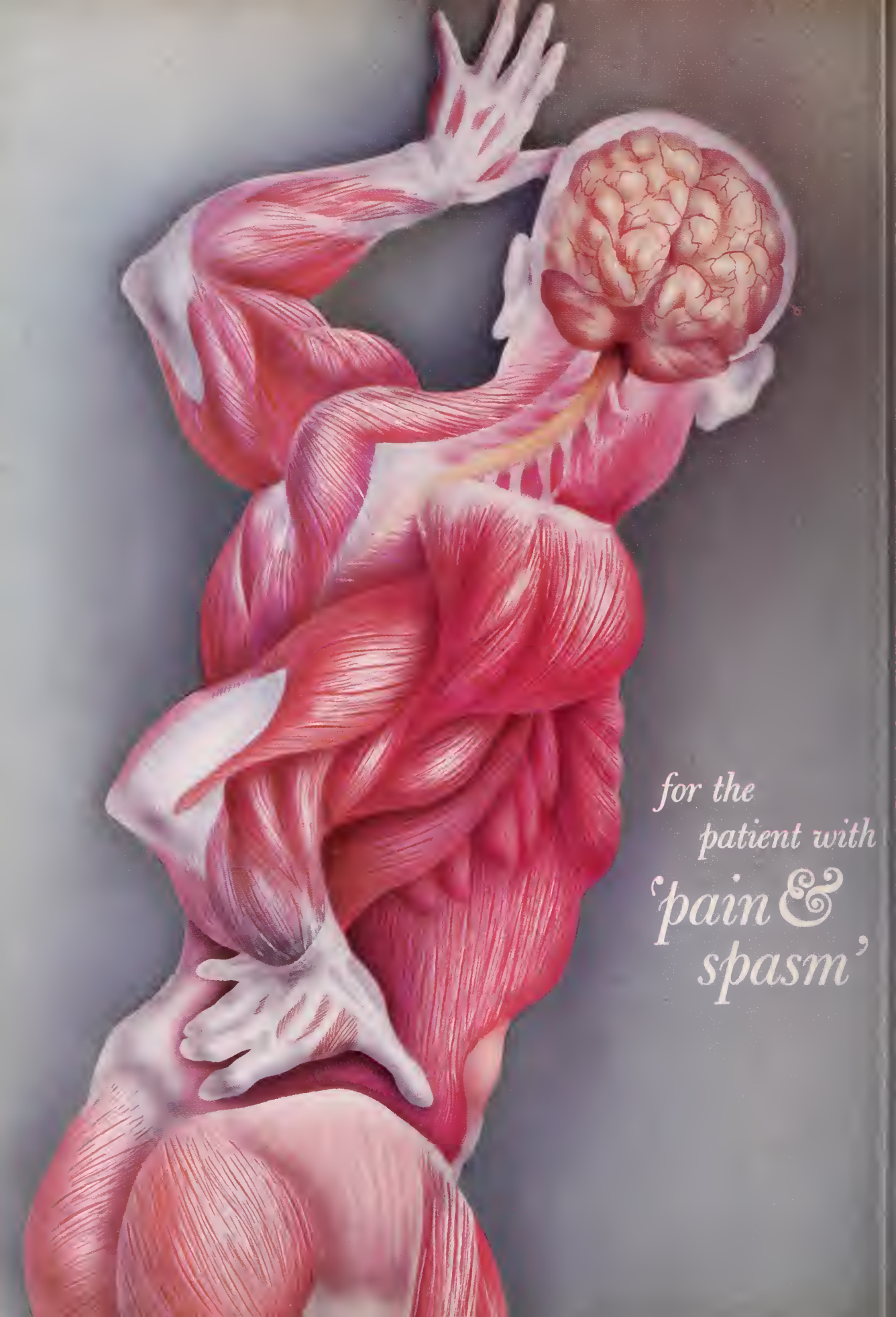
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December, 1964



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1. Editorial: Postgrad. Med., 34:102, 1963. 2. Brise, H., and Hallberg, L.: Acta med. scandinav., 171(Supplement No. 376):23, 1962. 3. Sheehy, T. W.: Blood, 18:623, 1961.

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1. Roach, T. C.: Therapy of Peptic Ulcer, J. Louisiana Med. Soc. 115:136-139 (April) 1963.
2. Steinberg, H., and Almy, T. P., Drugs for Gastrointestinal Disturbances, Chapter 21, in Modell, W. (editor): Drugs of Choice -1964-1965, St. Louis, The C. V. Mosby Company, 1964, p. 343.

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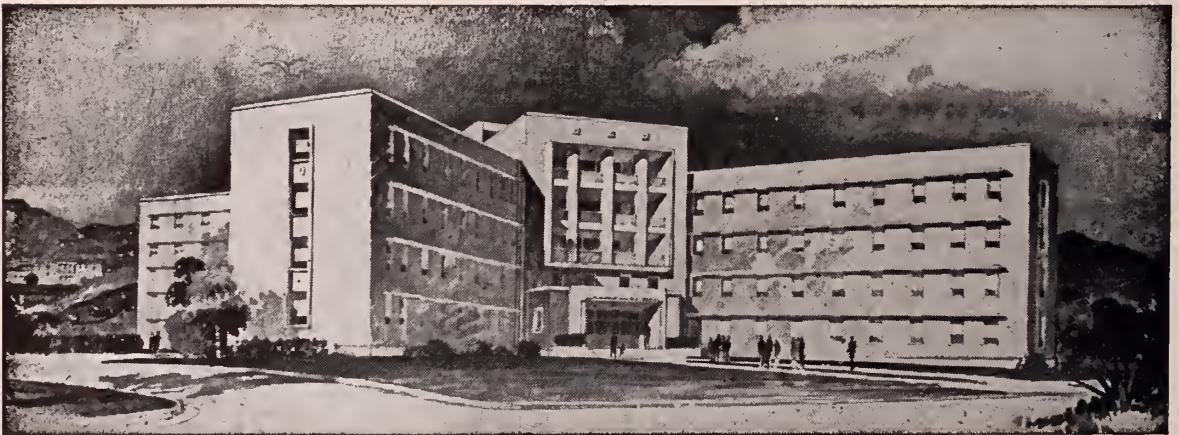
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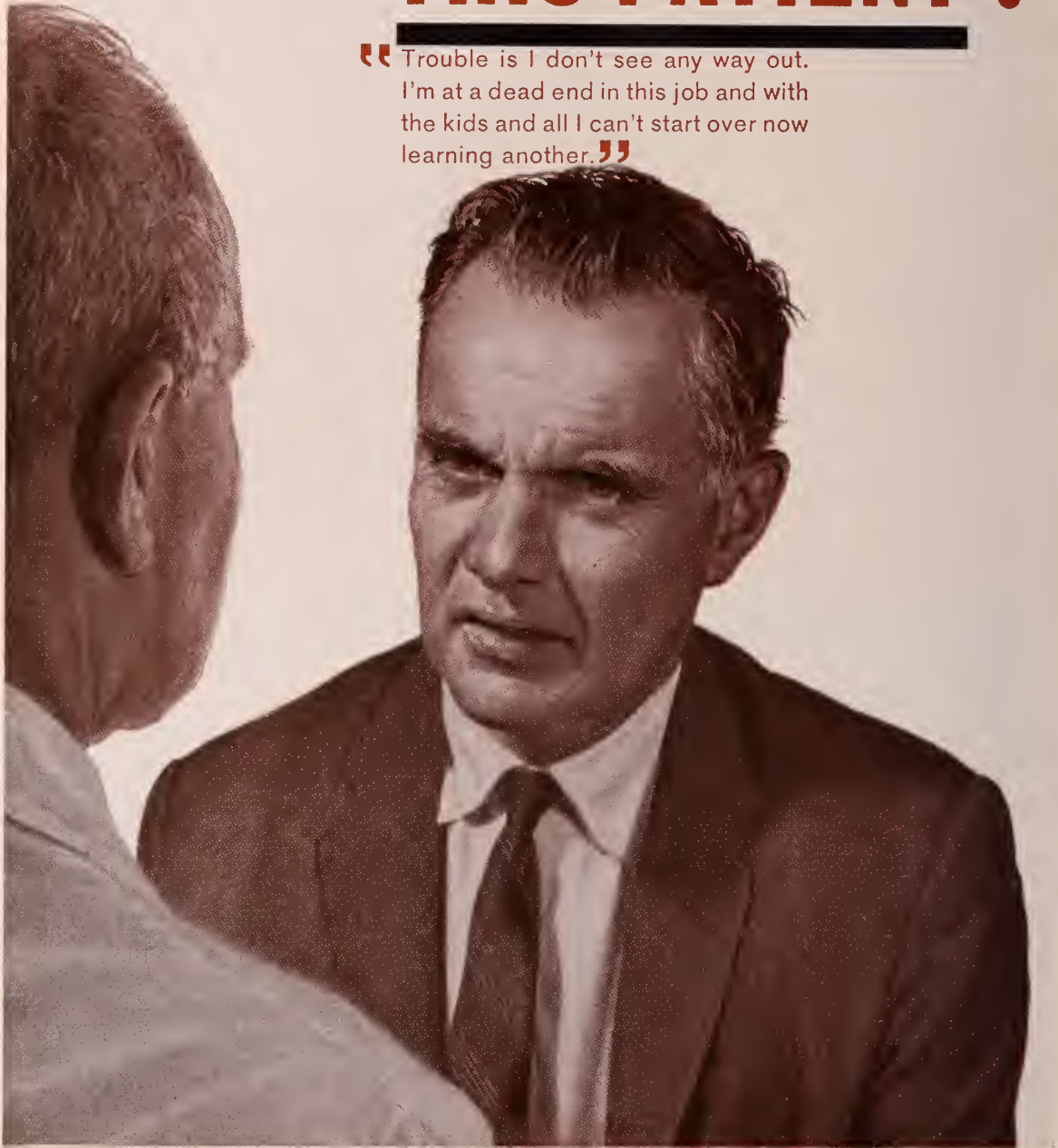
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Meprobamate—Drowsiness may occur and, rarely, ataxia, usually controlled by decreasing the dose. Allergic or idiosyncratic reactions are rare, generally developing after one to four doses of the drug. Mild reactions are characterized by an urticarial or erythematous, maculopapular rash. Acute nonthrombocytopenic purpura with peripheral edema and fever, transient leukopenia, and a single case of fatal bullous dermatitis after administration of meprobamate and prednisolone have been reported. More severe and very rare cases of hypersensitivity may produce fever, chills, fainting spells, angioneurotic edema, bronchial spasm, hypotensive crises (1 fatal case), anuria, stomatitis, proctitis, and anaphylaxis. Treatment should be symptomatic and the drug not reinstituted. Isolated cases of agranulocytosis and thrombocytopenic purpura, and a single fatal instance of aplastic anemia have been reported, but only when other drugs known to elicit these conditions were given concomitantly. Fast EEG activity has been reported, usually after excessive meprobamate dosage. Massive overdosage may produce lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse. Dosage: Usual starting dose, one tablet three or four times daily. May be increased gradually to six tablets daily and reduced gradually to maintenance levels upon establishment of relief. Doses above six tablets daily are not recommended even though higher doses have been used by some clinicians to control depression and in chronic psychotic patients. Supplied: Light-pink, scored tablets, each containing meprobamate 400 mg. and benactyzine hydrochloride 1 mg. Before prescribing, consult package circular.

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Coming Meetings

International Society for Comprehensive Medicine, Western Regional Meeting, Mountain Shadows Resort, Scottsdale, Arizona, Jan. 8-10, 1965.

Eighth Annual Cardiac Symposium of the Arizona Heart Association, Arizona Biltmore Hotel, Phoenix, January 29 and 30, 1965.

17th Annual Midwinter Radiological Conference, Biltmore Hotel, Los Angeles, Jan. 30-31, 1965.

District One, Texas Medical Association, Pecos, Texas, Feb. 6, with Post-Graduate Course, Feb. 7, 1965.

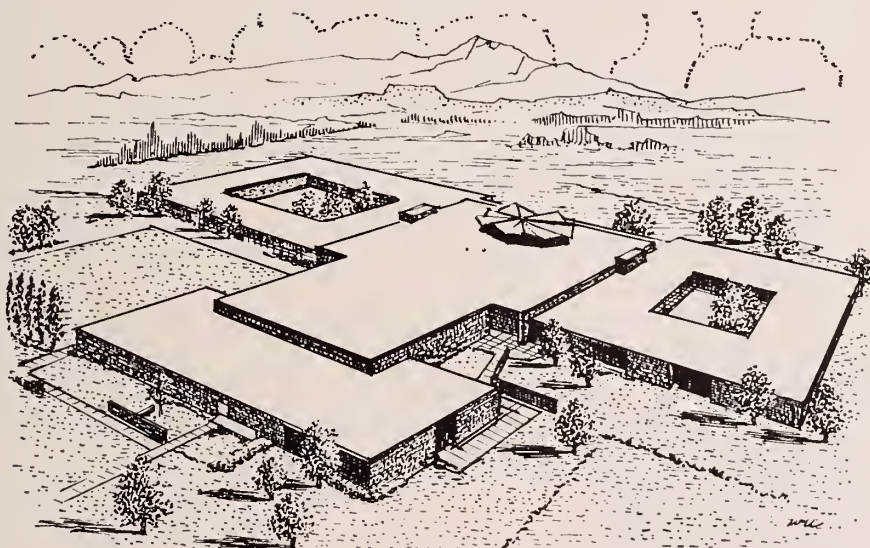
19th Annual Symposium on Fundamental Cancer Research, The University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, March 4, 5, 6, 1965.

23rd Annual Meeting, U.S.-Mexico Border Public Health Assoc., Los Angeles, April 26-29, 1965.

83rd Annual Meeting of the New Mexico Medical Society and 12th Biennial Meeting of the Rocky Mountain Medical Conference, La Fonda, Santa Fe, May 9-15, 1965.

Eighth Annual Ruidoso Summer Clinic, sponsored by the New Mexico Chapter of American Academy of General Practice, Ruidoso, N. M., July 19-22, 1965. Headquarters: Chaparral Motel.

15th Annual Meeting of the Southwest Obstetrical and Gynecological Society, Arizona Inn, Tucson, Oct. 28-30, 1965.



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*Lennox, W. G.: *Epilepsy and Related Disorders*, Boston, Little, Brown and Company, 1960, vol. 2, p. 865.

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Let's Plan Ahead

SOL HEINEMANN, M.D., *El Paso*



Most physicians, tied to the treadmill of practice, make no plans for the future. Their usual routine consists of the practice of medicine with a few golf games scattered here and there. All too few are involved in the civic life of their community, and are infrequently found taking an active part in community projects. In the rat race of patient demands they find themselves leading a fairly circumscribed existence. In addition to golf, there is hunting and fishing when available; a few become pilots and others participate in some other activity that can be sandwiched into a busy practice.

What of the day when the physician finds himself too old to practice effective medicine. Many, while they could afford to retire, having nothing to turn to, and rather than vegetate continue to practice, accepting the heartbreak of a slowly diminishing practice, and a lower rung on the ladder of medical prominence in their community. Others, because of illness such as coronary heart disease, cerebrovascular accidents and other chronic diseases, find they are unable to physically carry on.

What are the possibilities that these men can turn to? In a few communities that are large enough, there are community projects that can well use their medical knowledge on a part-time basis. Also present in some of the larger communities are part-time jobs with the local Public Health Department, and a few men can be successful in a part-time practice in some specialty.

Few of the men that we are talking about are acceptable in the Veterans Administration or with other governmental agencies. This leaves us wondering what the future will hold, should we find ourselves in a predicament of this nature. How can we plan ahead to meet a situation like this? Should we be doing something now in case our future medical practice must be curtailed?

Preparations of this type are not the results of a quick decision, a few minutes spent with a book, or a change to a new field which holds no interest for the one involved. A change of this type in our daily routine involves a long period of study and an interest which is either present or acquired. Most men who meet a problem of this nature have spent years in development of a field that is usually a hobby, that they have worked at concurrently with their medical practice. How does one get a hobby like this? Many times it depends on the interest of the physician. Let me point out a few that could pay off.

None of us live in a barren world, no matter what area of the country we live in. It was inhabited by man for several thousands of years before we arrived. The archaeology of our own area is both a satisfying study and could lead to a new field of interest that would prevent vegetation of the mind and body because of a forced retirement. Many doctors have become interested in mineralogy and have developed a fascinating hobby collecting rocks, polishing them or studying the geology of their home areas. We have many retired

people today who have developed a good business in this field once they were unable to carry on their original work.

One finds among physicians many Civil War, Revolutionary War and other historical buffs, but one need not go so far afield. The history of your own community, county and state makes a fascinating study and should you be fortunate enough to be able to acquire historical relics of the various periods, you will have contributed much to your local community.

I have just attempted to point out a few possibilities, realizing that the more active and strenuous sports such as golf, hunting, fishing, water skiing, etc., are many times not available to a

physician who cannot physically carry on his active practice because of illness or age. Most of us who like these sports have already learned that they are wonderful in moderation, but after a few weeks their interest palls, when we have nothing else to turn to. While they are physically satisfying, they never satisfy the minds of people such as physicians, whose minds are active and must be kept busy to prevent their own deterioration. What plans have you made for the future? Will you depend on the Country Club, bridge game and refreshment at the 19th hole, or will you be ready with an interest that is already paying dividends in your present life?

1900 N. Oregon

TMA President to Speak At District One Meeting

Dr. Max E. Johnson, San Antonio, President of the Texas Medical Association, will be the luncheon speaker at the annual meeting of District One of the Texas Medical Association in Pecos, Texas, February 6 and 7, 1965.

Speakers at the meeting will include Dr. John M. Verosky, Dr. George W. Iwen, Dr. Jean Turner Bowman, and Dr. Dale F. Rector, all of El Paso. Program for a postgraduate session under the direction of Dr. J. Leighton Green of El Paso for February 7 is to be announced. Registration fee will be \$20.

Dr. Johnson will speak at the luncheon in the Pecos Country Club, where the meeting will be held.

Officers of District One are Dr. George A. Hoffman, Fort Stockton, President; Dr. Ira A. Budwig, El Paso, President-Elect; Dr. William R. Gaddis, El Paso, Secretary-Treasurer; Dr. Mario Palafox, El Paso, Secretary-Treasurer Elect; Dr. Russell Holt, El Paso, Councilor; and Dr. John C. Hundley, Fort Stockton, Vice-Councilor. Dr. Gaddis is program chairman.

The complete program for Feb. 6 is as follows:

Noon	Luncheon, Dr. Max E. Johnson, TMA President, Speaker
2:00 - 2:30 p.m.	Vector Cardiography in Children, Dr. John M. Verosky
2:30 - 2:40	Discussion
2:40 - 3:10	Esophageal Lesions Seen in a Community Hospital Dr. George W. Iwen
3:10 - 3:20	Discussion
3:20 - 3:50	Treatment of Metastatic Carcinoma of the Breast Dr. Jean Turner Bowman
3:50 - 4:00	Discussion
4:00 - 4:30	pH and pCO ₂ Dr. Dale F. Rector
4:30 - 4:40	Discussion
4:50	Business meeting
6:00	Cocktail Supper

Southwest OB and Gyn Meets



SOUTHWEST OB AND GYN OFFICERS—New officers of the Southwest Obstetrical and Gynecological Society, which held its 14th annual meeting in El Paso, October 28-31, 1964, are Dr. Hermann S. Rhu, Tucson, President, second from right; Dr. Bernard Hark, La Jolla, California, President-Elect, right; Dr. George Fraser, Tucson, Vice-President, left; and Dr. Charles T. Franklin, La Mesa, California, Secretary, who was re-elected; Dr. Jesson L. Stowe, El Paso, retiring President, is second from the left. Not shown is Dr. Francis Rook, San Diego, who was re-elected Treasurer. The 1965 meeting will be held in Tucson, October 28-30, with headquarters at the Arizona Inn.



IN GOOD FORM—Dr. Ralph A. Reis, second from right, a perennial participant in the Southwest OB and Gyn Society meeting, and who is Professor of Obstetrics and Gynecology at Northwestern University and Editor of *Obstetrics and Gynecology*, was in his usual good form at the Society's annual meeting in El Paso in October. Here he is shown with Dr. Edward T. Tyler, right, also a speaker, who has The Tyler Clinic in Los Angeles, is Co-Director of the U.C.L.A. Medical Center Infertility Clinic and who was a professional television writer for 16 years for the Groucho Marx Show; Dr. Joseph M. Botte, San Diego, left, and Dr. Gray E. Carpenter, El Paso, convention chairman.



SOUTHWESTERN MEDICAL OFFICERS—New officers of the Southwestern Medical Association, elected at the 46th annual meeting in Las Vegas, Nevada, October 22-24, 1964, are Dr. Clement C. Boehler, second from left, El Paso, President; Dr. Zigmund W. Kosicki, second from right, Santa Fe, Vice-President; and Dr. Robert F. Boverie, right, El Paso, one of 12 members of the Executive Committee. On the left is Dr. Frank A. Shallenberger, Jr., Tucson, retiring President. Not shown is Dr. Frank A. Rowe, Albuquerque, President-Elect.

Dr. C. C. Boehler Elected President of Southwestern Medical Association

Dr. Clement C. Boehler of El Paso was elected President of the Southwestern Medical Association at the organization's 46th annual meeting in Las Vegas, Nevada, October 22-24, 1964.

Other new officers are Dr. Frank A. Rowe, Albuquerque, President-Elect; Dr. Zigmund W. Kosicki, Santa Fe, Vice-President; and Dr. Sol Heinemann, El Paso, Secretary-Treasurer. Dr. Frank A. Shallenberger, Jr., Tucson, was the retiring President.

Members of the Executive Committee are the above officers, Dr. Shallenberger, Dr. Robert F. Boverie, El Paso, Dr. Louis W. Breck, El Paso, Dr. John S. Carlson, Phoenix, Dr. Charles W.

Carroll, Las Cruces, New Mexico, Dr. Homero Galindo, Juarez, Mexico, Dr. Frederico Sotelo, Hermosillo, Sonora, Mexico, and Dr. J. Warner Webb, Jr., Tucson.

El Paso was selected as site for the 1965 meeting. The date and convention headquarters has not yet been announced.

Faculty members on the scientific agenda, all from the School of Medicine at the University of California at the San Francisco Medical Center, were Dr. Robert C. Combs, Dr. James S. Elliot, Dr. Leon Goldman, Dr. Frank A. Gotch, Dr. Felix O. Kolb, Chauncey D. Leake, Ph.D., and Dr. Mary B. Olney.



SOUTHWESTERN SPEAKERS—Among speakers at the 46th annual meeting of the Southwestern Medical Association in Las Vegas, Nevada, recently were, left to right, Dr. Robert C. Combs, Dr. Leon Goldman, Dr. James S. Elliot, and Dr. Felix O. Kolb, all from the School of Medicine, University of California, San Francisco Medical Center.



Dr. Paul Austin

An honored guest at the meeting was Dr. Paul Austin, 76, of Lordsburg, N. M., who was present at the organizational meeting of the Southwestern Medical Association in 1914 in El Paso, where Dr. Austin practiced medicine from 1914 to 1917. Dr. Austin later moved to Lordsburg and then to Morenci, Arizona.

He is a former President of the Arizona Medical Association.

Dr. Boehler received his B.S. from Creighton College and his M.D. from the Creighton University School of Medicine in Omaha. He interned in Mercy Hospital in Chicago and took his residency in the Lewis Memorial Maternity Hospital in Chicago. He began the private practice of medicine in Chicago in 1936 in his specialty of Obstetrics and Gynecology and remained there until 1944, when he entered the Navy. During this

period in Chicago he was Clinical Associate in the Department of Obstetrics and Gynecology at the Loyola University School of Medicine, Associate Gynecologist at Cook County Hospital, and Attending Gynecologist in the Cook County Tumor Clinic.

He came to El Paso in 1946 and in 1953 Dr. H. W. Demarest became associated with him. Dr. Boehler is a Diplomate of the American Board of Obstetrics and Gynecology, a Fellow of the American College of Surgeons and also the American College of Obstetrics and Gynecology. Vice-President of the El Paso—New Mexico Chapter of the American College of Surgeons, and a member of the Central Association of Obstetrics and Gynecology. He is a charter member of the American College of Obstetrics and Gynecology.

He has been President and District Governor of the Serra Club and is a former Director of the Child Guidance Clinic in El Paso. He and his wife are members of the St. Joseph Catholic Church. They have five daughters and three sons and reside at 3015 Silver Avenue in El Paso.

Future of the Diabetic Child*

MARY B. OLNEY, M.D.,** *San Francisco*

The future of the child having diabetes should not be entrusted to hopes for cures but rather to the benefits of coping with the present situation. Fixing sights only on the future encourages non-acceptance of a relentless metabolic problem. In non-acceptance the problem rules the individual. Learning to manage the routines of care today encourages acceptance of the metabolic problem. In acceptance the individual rules the problem.

To promote acceptance of diabetes, good teaching must be done. In teaching sessions both parents and the child should be included. Acceptance of the need for insulin can be indicated by simple diagrams showing a concept of the difference between diabetes in the adult and in the child.

If in the adult the pancreas is represented as having units of cells producing insulin for specific numbers of pounds of weight, it would follow that weight gain in excess of the amount of insulin produced would result in clinical diabetes and that weight loss would result in reversal of this situation. Belief that this is a cure of diabetes is a fallacy. This is a return to food intake which can be metabolized by the quantity of insulin produced. It has no practical application to the developing child who outgrows his insulin supply at 25 pounds, and could be kept nondiabetic only by keeping his weight under 25 pounds. Exogenous insulin is required for whatever weight gain is desired beyond what his endogenous insulin production can supply.

If in the adult the pancreas is represented as having a shell around it indicating an antagonistic substance which will not allow adequate insulin out of the pancreas, use of any material

which will deal with the antagonistic substance will make insulin available. This has no practical application to the developing child who has outgrown his insulin supply—there are no present known antagonists to be dealt with.

If in the adult the pancreas sustains injury through trauma to the abdomen, through obstructive involvement of the pancreatic duct, or through viral damage to the beta cells of the pancreas, the insulin deficit must be made up by the administration of insulin. In the adult the dosage of insulin is relatively small because it is not needed to metabolize food for growth and development. In the child the dosage is relatively large because of the need to metabolize food for growth and development. The increase in dosage over the first few years of diabetes does not represent a more severe diabetes but rather an increase in body bulk to be supported.

Diagram I.

TYPES OF DIABETES MELLITUS

000	Obesity type	
000	"Antibody" type	tolbutamide
000	(A)	chlorpropamide
		phenformin
000	Injury type	
000	Hemorrhage	
	Infection	
	CNS damage	
0	Deficiency type	
	Growth spurts	

For lay persons the comprehension of blood sugar curves following a meal generally is difficult. It seems easier to understand the sugar spill into the urine at various blood sugar levels. The use of Benedict's Solution for testing sugar spill is preferred where participation of the child in testing is desired. The color range for testing is easily interpreted. The use of Clinitest tablets (dried Benedict's Solution) has advantages and limitations. The travel kit is very useful, the recording

*Presented at Southwestern Medical Association Meeting, Las Vegas, Nevada, October 24, 1964.

**Department of Pediatrics, University of California Medical Center, San Francisco.

book is excellent for surveying control, and the testing may be done conveniently anywhere. The corrosiveness of tablets that may be swallowed by small children, the deterioration of tablets in oxygen, the difficult color range for children to distinguish and the reversion of the test to negative after complete reduction are disadvantages of the method. Enzyme tapes or sticks are not comparably quantitative to the tests mentioned and their use should be limited to rough screening of specimens to detect undiagnosed diabetes or to select which tests should have definitive testing.

Diagram II.

CORRELATION OF BLOOD & URINE SUGAR		
	Benedict's Solution	Clinitest
600	red	
500	red	++++
400	brown	+++
300	yellow	++
200	olive	+
175	green	blue
175	blue	blue

Because the parents of the diabetic child are besieged with free and all too frequently erroneous advice it is necessary to inform them of the types of insulin available and the suitability of each for treatment. When only Iletin insulin (1921) was available it had to be given before each meal and at midnight. Protamine insulin (1937) alone worked too slowly to utilize meals for the growing child. Wide distribution of five to seven small meals to improve utilization proves to be a nuisance. Insulins slower acting than Iletin (regular or crystalline) and faster than protamine, known as intermediate insulins, still are too slow for optimal utilization of meals in children. Insulins available as they have been from sheep, beef and pork are allergenic to varying degrees and the future promises synthetic insulin and modifications of it that probably will have distinct advantages. Instruction in the use of insulin should cover other points—the need for wide shifting of injection sites, the use of sufficiently long needles

(#26, 5/8"), the use of a long barrel syringe for accurate measurement, insulin only in the unitage in which the syringe is calibrated, no refrigeration of insulin once a bottle is used lest the daily temperature changes "break" the colloidal suspension. Disposable syringes and needles are a great convenience for travel.

Diagram III.
TYPES OF INSULIN

		Action
Iletin	1921	3-4 hours
Protamine	1937	16-24 hours
NPH	1944	12-16 hours
Globin	1944	12-16 hours
Lente	1947	12-16 hours
Semilente		8-12 hours
Ultralente		16-24 hours
Swedish	1960	?
Synthetic	1962	?

Diet for the diabetic should be taught as a privilege of having adequate building material for growth and development, not as deprivation of dietary indiscretions. The families accepting the diabetic diet best are those not addicted to the American sophistry and proof-of-affluence calling for dessert at every meal. The higher the diet is in carbohydrate, the greater is the cost in insulin of the diet. That diet which appropriately meets pediatric standards for growth and development has sufficient protein for growth and development, an equal number of grams of fat and twice the number of grams of carbohydrate. With the use of available exchanges or with training in food substitutions and imagination the diabetic diet can be made most attractive. The diet which is low in carbohydrate is unduly expensive and monotonous because of the limited variety in protein.

Diabetics who have experienced acidosis with infections frequently are in fear of needing hospitalization. To allay this fear and to safely treat infections in the home, knowledge of use of the juice equivalent is important. When the diabetic has acetone he routinely is given juice equivalent in place of his meal. The day's insulin dosage is

Diagram IV.

	(1)	(2)	(3)	DIET PRESCRIPTIONS	
	one	three	two	2100 calories	Insulin Cost
egg	one	8 oz.	8 oz.	(1) C 250 x 4 = 1000	
milk	one	one	one	P 50 x 4 = 200	
cereal	one	one	one	F 100 x 9 = 900	145 units
fruit	three	1/2 serv.	one	(2) C 50 x 4 = 200	
bread	1 1/2 sl.	one	one	P 250 x 4 = 1000	
bacon	3 1/2 pats	one	2 strips	F 100 x 9 = 900	103 units
butter	one	one	3/4 pat	(3) C 200 x 4 = 800	
meat	one	1 oz.	one	P 100 x 4 = 400	
gelatin	one	48 gm.	one	F 100 x 9 = 900	134 units

converted into regular insulin and one-third is given before each juice equivalent meal. The juice equivalent is divided into five portions given at 20 to 30 minute intervals. If acetone disappears after a breakfast juice equivalent a regular menu lunch may be given preceded by one-third of the insulin for the day. The remaining third of the insulin is given before dinner which may be juice or a regular menu dinner.

Diagram V.

JUICE EQUIVALENT

Diet Rx:	C 200, P 100, F 100	
Single Meal	C 66, P 33, F 33	
Conversion	C 66 x 100% =	66
	P 33 x 58% =	19
	F 33 x 10% =	3
		88 gm.
Supply as:	10% glucose	880 cc.
	12% juice	733 cc.
	3% juice	2932 cc.
	18% juice	407 cc.

The physician tries to teach a positive philosophy appealing to the parents not to assume the role of martyrs or moralists or exhibitionists because of having a diabetic child. They should show no pity and should insist that ability and not disability counts. For some families maudlin sympathy prevails and it becomes necessary for an outside-the-family agency to offer assistance.

Diagram VI.

CONTRIBUTIONS OF CAMP

Knowledge	DIET
	INSULIN
	URINALYSIS
	REACTIONS
	ACCOMPLISHMENT
Adjustment	LEAST COMMON DENOMINATOR
	FRIENDS
	SOCIAL AMENITIES
	MEASURING STICK

In a camp for diabetic children diabetes becomes the least common denominator and no one can trade on it effectively. There a child may see an insulin reaction and learn from it what he wants to prevent in himself. The diabetic has no memory of his own reactions and cannot learn from them. His purported memory of reactions is an accounting given by his frightened parents of the impact of a reaction on them. The diabetic has ample opportunity in the camp situation to learn the variations in insulin types and dosages, the meaning of urine testing, the potentialities of diet variation. He learns what a diabetic can be allowed to do. Most important is the opportunity to measure himself against his diabetic peers — does he have as much skill or leadership or personality or endurance? If he doesn't have, what are the steps to measure up? The yardstick is in the camp for the diabetic child. In a camp for the nondiabetic the diabetic tries constantly to deny his diabetes and frequently eats his heart out because he isn't like the other campers.

The future of the diabetic cannot be influenced favorably by standing on the sidelines wishing. The very best qualified research teams are hard at work on the basic problems involved in solving diabetic problems. The role of the physician and parent is to deliver the diabetic child to the future in the best possible physiological and psychological state to take advantage of what the future holds, to educate the family in the best possible dietary practices, to forestall other cases of diabetes in the family, to train the diabetic to merit acceptance in society and to train society to accept the diabetic.

Footnote: This brief presentation skips lightly over many considerations in the care of the juvenile diabetic. It is intended as an introduction to care and is not conclusive in any area it touches —time and space forbid.

PKU (Phenylketonuria)

LAURANCE N. NICKEY, M.D., *El Paso*

It is known that there are at least four abnormalities of metabolism: Galactosemia, Hepatolenticular Degeneration, Maple Syrup Urine Disease, and Phenylketonuria, which are associated with mental or neurological defects and are aided by dietotherapy. In the first, improvement follows the reduction of dietary galactose early in life; in the second, removal of copper from the body affords some benefit. In the third, however, there has been no effective treatment until recently. The fourth, Phenylketonuria, will be our topic of discussion.

History

The Norwegian biochemist, Fölling, first described Phenylketonuria in 1934. He isolated and crystallized phenylpyruvic acid from the strikingly musty malodorous urines of two mentally defective siblings. Later he reported 10 similar patients, four males and six females, noting the lack of clearcut physical characteristics, a tendency toward dermatosis, muscular rigidity, and an ape-like or pithecoid posture. Since phenylpyruvic acid was not found in the urine of normal persons, he related its presence to the mental retardation and named the disease "Imbecillitas Phenylpyruvica." Confirmation of this disorder was soon presented by Penrose reporting from England who provided the first pedigree of a case of Phenylketonuria which demonstrated the mode of inheritance of the condition, and a single recessive gene was held to be the cause. Not only was it noted that the gene caused amentia when present in homozygous form, but that the heterozygote or carrier showed a marked tendency to develop insanity in the involutionary period of life.

Cases were identified in other European countries and America, and by 1954 Jervis found 513 recorded cases in the literature. Excellent reviews on the subject have been undertaken by Jervis,

Cowie, Penrose, and recently Kleinman.

It has been well demonstrated that a simple test utilizing about five cc's of freshly voided urine, acidified with dilute sulfuric acid to which a few drops of five per cent ferric chloride are added, is relatively diagnostic, with few limitations, if phenylpyruvic acid is present, producing an immediate blue-green color. Cawte has suggested that this test be applied to any infant or child in whom there is reason to suspect mental retardation. At the present time it is advocated that testing for PKU be made just as much a part of "well infant care" and as routine as immunizations.

Detection can be done either in the hospital or in the doctor's office. The tests are simple and have a high degree of specificity. Two (ferric chloride, dip-stick) require a diaper wet with urine; the third (Guthrie inhibition assay test) requires a drop of blood taken after the baby has been fed for several days. A drop of 10 per cent ferric chloride placed on the wet diaper will turn dark blue-green if there is an abnormal amount of phenylketones present in the urine; the dip-stick (Phenistix, Ames Co.) also has a pronounced color change. Both of these should be performed at three and six weeks of age, as some infants take longer than others to arrive at significant blood levels of phenylalanine metabolites, which then spill into the urine.

Incidence

It is generally estimated that after taking the population as a whole the accepted incidence is between one in 25,000 to 40,000. However, recent surveys indicate a higher incidence. Many investigators have studied the frequency of phenylketonuria in institutions for the mentally defective. It ranges from a low of 0.06 per cent in Switzerland to 2.71 per cent in an English study. A fre-

quent figure used is four per 100,000. This places the frequency of the heterozygous carrier at one in 80; approximately 1.26 per cent of the total population carries the gene. By the most conservative estimation of two per 100,000, this would make the number of phenylketonuric patients in the United States about 3,200. The public institutions for mental defectives and epileptics have a population of approximately 130,000, and assuming by generous estimation that approximately one per cent of these patients are phenylketonuric, then there are 1,300 in the institutions and 1,900 elsewhere. Another estimate is that of 7,500 presently (September—1964) in mental hospitals. The size of this latter group suggests that many patients may be among the unexamined, less retarded, the psychotic or the normal population.

Although there seems to be a decided tendency for Phenylketonuria to occur in the Aryan race, there have been at least two cases in patients of Jewish ancestry and one case in a Negro.

Inheritance and Genetics

Few human diseases are so uniformly manifested and precisely identifiable as Phenylketonuria. Because of this, its incidence can readily be shown to conform to the Mendelian laws of inheritance and a high degree of certainty resides in the statement about its genetic distribution. The mode of inheritance of Phenylketonuria has been deduced from the histories of families in which these cases occur in so complete and satisfactory a manner that only the conclusions need be given. The ratio between males and females is approximately equal.

Phenylketonuria is a recessive condition, transmitted by a single autosomal gene. It occurs in each sex with equal frequency, since the gene is not located on the sex chromosomes. The main features of the disease are the result of one gene and are not the composite result of several genes. The single responsible gene must be very similar or identical in different families because of the uniformity of the disease picture. The disease occurs only in persons who receive two of the abnormal genes, one from each parent. When this happens the disease invariably develops. The absence of an analogous milder disease in the heterozygote, who carries only one abnormal gene, is well established. The typical inheritance of Phenylketonuria is, therefore, from two apparently normal parents. One in four of their children, on the average, will have Phenylketonuria,

one will be normal, and two apparently normal heterozygotes.

The distribution of the gene in an average family has been determined by statistical methods based on the distribution of phenylketonurics in known families. The single gene can now also be identified directly by a chemical test which distinguishes the heterozygotes and with this method statements can be made about persons instead of populations, but the facts cited will not be altered. Instead of one in four, none or more than four phenylketonuric children may be produced by a given family, since the lottery of genes at each fertilization is an independent event, not unlike the tossing of a coin. Only in the aggregate, including those families with none affected, will the ratio of affected to normal children approach one in four.

Considerable interest is attached to the question of whether or not the heterozygotes for Phenylketonuria are quite normal. A possible increased susceptibility to involutional psychosis in later life was mentioned by Fölling and supported by Penrose. Data on large series of families show that this is not unusual, but few heterozygotes have been definitely identified and fewer still have been seen when they could manifest a disease of old age. There are about 100 unidentified heterozygotes for every heterozygote known through his phenylketonuric offspring. The calculated frequency of heterozygotes in the population (two times the square root of the incidence) is somewhat more than one per 100 people, or about the same frequency as mental illness in general. The presence of any diathesis in such a sizable fraction of the population could be missed in the few known parents and still might account for considerable morbidity.

Phenylalanine tolerance test done by Hsia and Driscoll show that parents of proved phenylketonuric patients have lower capacities for metabolizing phenylalanine than do normal people, and that these tests can detect heterozygous carriers of Phenylketonuria.

Clinical Signs and Symptoms

In a total of 47 cases of Phenylketonuria in which Intelligent Quotient testing was carried out, it was found that 314 patients were of low grade intelligence and 164 patients were of either middle or moderate grade intelligence.

Reporting in the *AMA Journal of Diseases of Childhood*, Hsia and Knox presented the case of

a 13-year-old phenylketonuric girl with borderline to dull normal intelligence. She had an 18-year-old institutionalized phenylketonuric sister whose I.Q. was estimated at four, but the patient's I.Q. was determined at between 69 and 78. There have been quite a few other case reports of phenylketonuric patients with near normal or low normal intelligence, and the existence of cases in this intelligence range suggests the need for great caution in evaluation of the effects of diets low in phenylalanine or other experimental treatment of the disease, which will be discussed later.

Sex

The distribution between male and female is approximately equal in any large series.

Developmental History

In an article by Paine, he states that in the untreated patient the mean age of sitting alone is between 12 and 15 months, of walking about two and one-half years, and of talking between three and four years. About 54 per cent of the patients with low grade mental deficiency walk, but only eight per cent talk, and their speech is usually confined to single words.

Eczema

Approximately 20 to 25 per cent of the patients have a history of eczema, there being a higher incidence found in the low grade defectives.

Seizures

A history of convulsions occurs in about 25 per cent of all cases and it is again interesting that the incidence is higher in the low grade defectives. In Paine's series he reported that 79 per cent of the patients tested had abnormalities present in the electroencephalogram.

Physical Characteristics

In so far as height and weight are recorded there is no significant difference between the phenylketonuric mental defective and other mental defectives.

The majority of the patients have blue eyes and blond hair, and there seems to be no significant difference between patients of mild and severe mental deficiency. The relative blondness of the patients is usually believed due to impairment of tyrosine metabolism (as a precursor of melanin).

Neurologic Manifestations

In order of frequency the neurologic signs and symptoms are hand posturing (aimless movements, tic-like motions, etc.), hyperreflexia, microcephaly, tremor of the hands, severe temper tantrums and numerous other lesser manifestations.

Metabolic Error

According to most observers in the field of human nutrition, phenylalanine is considered to be an essential amino acid. In 1955 Rose et. al. showed that the daily requirement of healthy male adults was between 0.8 and 1.1 grams per day. Twice the highest value, i.e., 2.2 grams per day, was considered to be safe when L-phenylalanine was used. D-phenylalanine is incapable of replacing a sufficient quantity of L-phenylalanine to meet the minimal requirements of man. On the contrary, DL-phenylalanine, when included in the food at a level equal to or slightly in excess of an individual's minimal L-phenylalanine requirement, appears to be almost as effective as the L-isomere. S. E. Snyderman et. al. subsequently determined that infants require approximately 99 mgm. per Kilogram per day of phenylalanine. A deficiency of phenylalanine was associated with failure to gain weight, impaired nitrogen balance due primarily to increased azotemia and hypoglobulinemia. An increase in free amino acid excretion in the urine was also observed. The excretion pattern of free amino acids in the urine showed a striking decrease in phenylalanine itself and certain other consistent changes, notably an increased histidinuria.

In 1934 Fölling demonstrated the excessive excretion of phenylpyruvate in the urine and subsequently Jervis identified the metabolic abnormality as an inability to oxidize phenylalanine to tyrosine.

It is considered that Phenylketonuria originates in the malfunctioning of a structurally altered enzyme protein, and that all the signs and symptoms can be explained by this hereditary molecular abnormality. There is direct evidence for the primary malfunctioning of one enzyme and only one in phenylketonuria. This enzyme is termed phenylalanine hydroxylase which Mitoma has shown to consist of two fractions, one of which is present only in the liver and the other is in almost all tissues including the brain. Patients with Phenylketonuria are essentially devoid of phenylalanine hydroxylase. Since the conversion of phenylalanine to tyrosine is thought to take place only in the liver and Fraction I is found exclusively in this organ, the conclusion is that this enzyme, primarily concerned with the hydroxylation reaction, seems justifiable. Fraction II which is found in many tissues may then be looked upon as an enzyme concerned with an

auxiliary action, the nature of which is still not entirely understood.

The major abnormal metabolites, phenylalanine and its derivatives, are produced by the overflow of large amounts of phenylalanine through reactions normally carrying only small amounts. The combined leakages are sufficient to reestablish a steady state in the face of the dietary intake only at extremely high blood levels of phenylalanine. At these levels the renal reabsorptive capacity is overwhelmed and a significant amount is lost in the urine; however, there is no specific renal impairment. Phenylpyruvate is first formed in part by the transamination and also by the action of L-amino acid oxidase. Part of the phenylpyruvate is reduced to phenyllactate, a reaction catalyzed by DPN lactic dehydrogenase. Another portion is oxidatively decarboxylated to phenylacetate. The particular enzymes which do this to aromatic alpha keto acids are not yet known.

Several aromatic compounds are found in abnormal amounts in Phenylketonuria, the major ones of which are L-phenylalanine and its pyruvate-lactate-acetate and -acetylglutamine derivatives. The body fluids contain a high concentration of phenylalanine (20 to 60 mgm per cent in the plasma), but there is less of the remaining compounds, which are more rapidly cleared by the kidneys. The renal threshold for phenylalanine is approximately 15 mgm per cent and the normal phenylalanine blood level is 1.3 to four mgm per cent.

Treatment

In 1951, Woolf and Vulliamy suggested that if the amount of phenylalanine and its metabolites could be reduced, perhaps normal cerebral function might result. Whether or not this would bring recovery would probably depend upon the length of time the brain had been exposed to the damaging effects of the substance. They proposed two possible methods of achieving such a reduction: restriction of phenylalanine in the diet to the basic minimum early in life; and increasing the rate of excretion of the amino acid by administration of a substance to competitively reduce tubular reabsorption.

Since all dietary proteins contain approximately the same amounts of phenylalanine, a suitable diet can be arranged only by furnishing the bulk of the nitrogen in the form of a mixture of amino acids. This could be done by mixing pure amino acids, but at a cost that would prohibit any long term treatment. However, protein hydrolysates

have been commercially available for at least 10 years, and it has long been known that phenylalanine, tyrosine, and tryptophan can be removed from the hydrolysate by passing it through a column of charcoal. If tyrosine and tryptophan are then replaced in the mixture, the result is a phenylalanine-free protein hydrolysate.

In 1954 Bickel and co-workers reporting from England prepared such a diet and it was fed to a two-year-old female phenylketonuric. A rapid fall in the level of phenylalanine in the blood occurred and the excretion of phenylalanine and its derivatives in the urine decreased almost to normal. Because of weight loss and the level of tyrosine in the blood became unmeasurable, tyrosine, which had also been removed from the hydrolysate by charcoal, was restored to the diet with temporary weight stabilization. The improvement of the child was difficult to evaluate, but skin lesions improved, the hair became darker and the musty odor to her urine disappeared. Some improvement in behavior was also noted over an 11-month period. The addition of four to five grams of L-phenylalanine to the daily diet produced an exacerbation of her mental and behavioral deficiencies.

Soon afterward, Armstrong and Tyler described observations on five children with Phenylketonuria, while on a low phenylalanine diet. The children ranged in age from eight months to four and one-half years at the start of their dietary study. They consumed the diet for various periods of time up to several months. Some degree of improvement in mental and motor performance was noted in all children studied. The convulsive manifestations were most readily controlled by the low phenylalanine diet. It is striking that most of the better clinical results were obtained in the youngest patients. An eight-month-old boy had almost continuous seizures until he was given the restricted diet and within three weeks the convulsions had terminated and he continued to develop normally while on the diet. The brief readministration of phenylalanine to this patient produced only equivocal worsening of his condition.

Since the original investigations numerous authors have reported similar findings. Perhaps the most detailed study is that of Paine and co-workers reporting on "A One Year Controlled Study of the Effect of Low-Phenylalanine Diet on Phenylketonuria." The study included 24 phenylketonuric patients divided into pairs, comparable as to age, intelligence, and length of institutionalization. Twelve of the 24 patients were children

from the age of three years upward and 12 were adults. Of the paired patients, one selected by lot received a low phenylalanine diet and the other a control hydrolysate containing all the amino acids in the usual proportion. Regular determinations of plasma phenylalanine and urine phenylpyruvate were made throughout the year's time. It was noted that up to six months may be required to obtain normal plasma phenylalanine levels in adults and in older children. Only one patient in this series, a three-year-old female, showed any increase in intelligence and also a two-year-old male improved. Significant changes in intelligence occurred only in young children. Older patients showed significant changes as compared with controls in skin condition, hair color, behavior and to a lesser degree in their electroencephalograms.

It has been noted that in reviewing the literature that the metabolic defect becomes apparent soon after birth, if present; however, the youngest infants thus far reported with a positive ferric chloride test are three to four weeks old. It has been assumed that prior to this time that there is placental clearance by the mother of the abnormal metabolites, or that there is a gradual build up of the metabolic defect.

It has been well demonstrated that the earlier

an infant or child is placed on either a phenylalanine poor or free diet, the better the chances are of the patients having a normal or near normal intelligence. To substantiate the preceding, Centerwall et. al. in 1961 reported a series in which those children who were placed on the diet prior to two months of age developed within the normal or low-normal range; whereas, children started on the diet from eight months to three years had an average I.Q. of 72. A copy of his sample diet taken from the Journal of Pediatrics — Vol. 59, Number 1, Page 99 is listed below.

Excellent references to dietary management of Phenylketonuria may be had by referring to: Phenylketonuria, Low Phenylalanine Dietary Management with Lofenalac prepared by Mead Johnson Laboratories, Phenylketonuria Dietary Management by Acosta and Centerwall reporting in the Journal of the American Dietetic Association, Vol. 36, No. 3, March 1960, and A Guide for Parents of Children with Phenylketonuria prepared by the Bureau of Public Health Nutrition of the California State Department of Public Health. 1900 N. Oregon

(Editor's Note: Because of numerous references the Bibliography is omitted but may be obtained from the author on request.)

<i>Age & Weight</i>	<i>Formula</i>	<i>Breakfast</i>	<i>Mid-Morning</i>	<i>Dinner</i>	<i>Mid-Afternoon</i>	<i>Supper</i>
1 Month (8 pounds)	12 measures Lofenalac, 1½ oz. milk, 24 oz. water		Six or seven 3 to 4 oz. feedings of formula plus supplementary vitamins,			
6 Months (15 pounds)	19 measures Lofenalac, 1½ oz. milk, 26 oz. water	5 tablespoons applesauce, 8 oz. formula, supplementary vitamins & iron	5 tablespoons pureed carrots, 8 oz. formula			5 Tbsp. pureed peaches, 8 oz. formula, (Also 8 oz. formula at bedtime.)
18 Months (23 pounds)	23 measures Lofenalac, 1 oz. milk, 18 oz. water	2 Tbsp. pre-cooked rice cereal with 2 oz. formula & sugar, 1½ canned peach halves, 6 oz. formula, vitamins & iron	1 small apple.	½ cup cooked carrots, 2½ Tbsp. mashed potatoes made with butter or formula but no milk, 6 oz. formula	2 animal cookies, 4 oz. formula.	3 Tbsp. green beans, 3 canned pear halves, 6 oz. formula.
4 Years (36 pounds)	27 measures Lofenalac, 25 oz. water	½ cup Puffed Rice with 3 oz. formula and sugar, ¾ cup orange sections, 8 oz. formula, vitamins & iron.		½ cup cooked carrots, ¼ medium cucumber sliced, 5 Tbsp. mashed potato made with 1 tsp. butter & some formula, ½ cup apple-sauce 8 oz. formula	½ fresh peach 4 oz. formula	6 table- spoons cooked green beans, 3 canned pear halves, 3 animal cookies, 8 oz. formula



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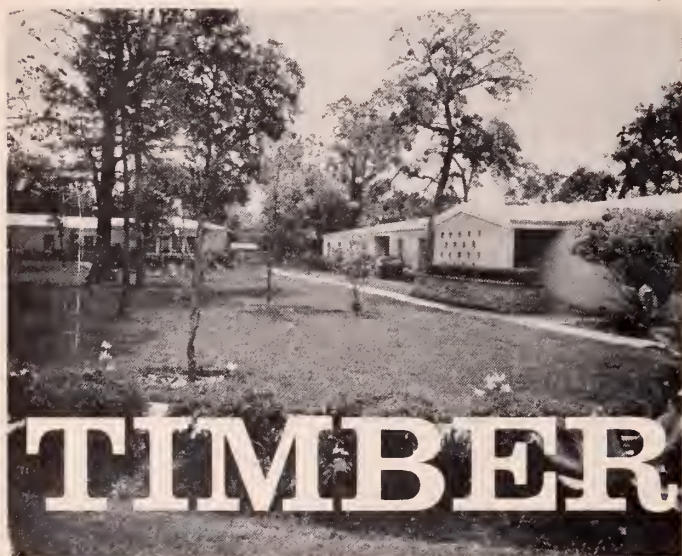
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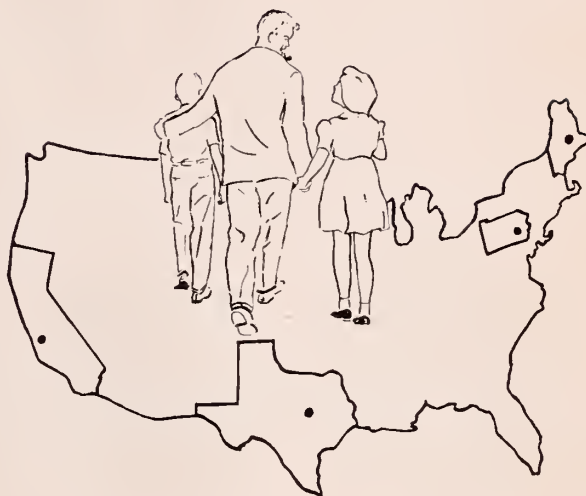
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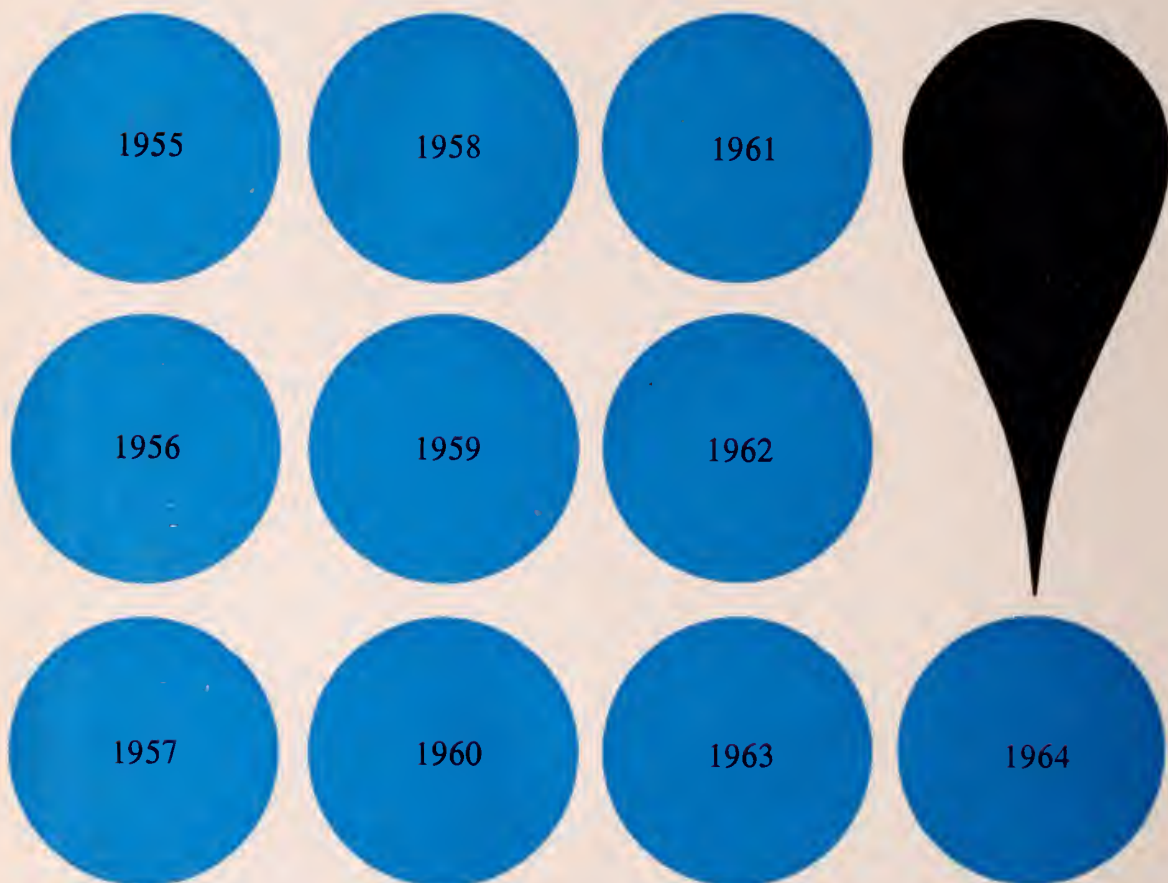
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